





ACCOUNTS AND PAPERS:

THIRTY-EIGHT VOLUMES.

—(6.)—

NAVY ESTIMATES.

NAVY, GENERALLY.

Session

5 February — 21 August 1867.

VOL. XLIV.

1867.

ACCOUNTS AND PAPERS:

THIRTY-EIGHT VOLUMES

(6)

NAVY ESTIMATES

NAVY GENERALLY

Digitized by the Internet Archive
in 2026

Session

5 February — 21 August 1867.

VOL. XLIV

1867.

ACCOUNTS AND PAPERS:

1867.

THIRTY-EIGHT VOLUMES:—CONTENTS OF THE SIXTH VOLUME.

N.B.—*THE* Figures at the beginning of the line, correspond with the N° at the foot of each Paper; and the Figures at the end of the line, refer to the MS. Paging of the Volumes arranged for The House of Commons.

NAVY ESTIMATES:

57. Navy Estimates for the Year 1867-68, with Appendix, and Account of Naval Old Store Moneys and Extra Receipts in 1865-66 - - - - - p. 1

Naval Stores:

290. Revised Estimate for Vote No. 10, Naval Stores for the Building, Repair, and Outfit of the Fleet and Coast Guard, Steam Machinery, and Ships Built by Contract.—Section II.—Controller of the Navy - - - - - 171

Royal Marine Corps:

465. Supplementary Estimate of Her Majesty's Navy, for the Year 1867-68, on account of the Increased Pay to be given to the Non Commissioned Officers and Privates of the Royal Marine Corps - - - - - 175

Greenwich Hospital and School:

58. Estimate for Greenwich Hospital and School, for the Year 1867-68 (separated from the Navy Estimates, but prepared by the Naval Department) - 177

Receipt and Expenditure:

30. Account of the Naval Receipt and Expenditure, for the Year ended 31st March 1866 - - - - - 185

Savings and Deficiencies upon Grants:

29. Savings and Deficiencies upon the Grants for Navy Services, in the Year ended 31st March 1866; showing all Cases in which the Navy Department has obtained the Sanction of the Treasury to Expenditure not provided for in the Grants for that Year, together with Copies of the Representations made to the Treasury by the Board of Admiralty; also the Balance Sheet, showing the Ledger Balances on the 30th September 1866, the Date on which the Annual Account of Naval Receipt and Expenditure for the Year 1865-66 was closed - - - - - 201

NAVY, GENERALLY:

Armour Clad Ships and Batteries:

537. Return of all Armour Clad Ships and Batteries Built by Contract for Her Majesty's Service since November 1865: &c. - - - - - 279

Boys and Seamen:

- ✓ 562. Actual Number of Boys in the Training Ships during each Quarter in the Three last Years:—Actual Number Discharged during the same periods from the Training Ships into Sea-going Ships; actual Number Discharged, or who died during the same Periods; actual Number Entered in the Navy otherwise than through the Training Ships during the same Periods; actual Number Rated as Ordinary Seamen during same Periods; and, actual Waste of Seamen during these Periods from Death, Desertion, Discharge, and end of Service - p. 285

Chain Cables and Anchors:

- ✓ 566. Cost of Cables, Anchors, and Mooring Chains Purchased for the Indian Department since January 1865; and Contract, Specification, or Schedule of Prices, stating whether Public Competition was Invited, and Tenders duly Advertised for in the usual manner - - - - - 287

Channel Fleet:

- ✓ 171. Admiral Yelverton and Admiral Warden's Report on the Trials of the Channel Fleet in 1866; with the Observations of the Comptroller of the Navy thereon, 289

Channel Squadron:

- ✓ 180. Report of the Admiral in Command of the Channel Squadron as to the Trials of the Ships comprising the Fleet under his Command, during the Year 1864; with any Remarks of the Comptroller of the Navy thereon - - - - - 315

Coals:

- ✓ 561. { Trials of Coal at Woolwich, Portsmouth, and Devonport Dockyards, between the 1st April 1866 and the 31st March 1867 (in continuation of Paper, No. 440, of Session 1866).
Trials of Coal at Woolwich, Devonport, and Portsmouth, from the 31st March to the 30th June 1867 - - - - - 339

Corporal Punishments:

- ✓ 220. Number of Seamen, Marines, and Boys in the First Class (for Good Conduct) who have been awarded Corporal Punishment by Sentence of Court Martial, from the 1st January 1862 (when the present Naval Discipline Act came into force) to this date - - - - - 345

Education and Religious Denominations:

- ✓ 36. Education and Religious Denomination of Petty Officers, Seamen, and Marines serving in the Navy, for the Year ending the 31st December 1865, in 227 Ships, 10 Coast Guard Ships, and five Divisional Barracks of Royal Marines - 347

First Class Boys, &c.:

- ✓ 255. Number of First Class Boys, *bonâ fide* Seamen, Coast Guard Fleet Men, &c., who were Borne, Rated, Entered, or who left the Service between the Years 1860-61 and 1864-65, inclusive, continued to the present time - - - - - 349

Greenwich Hospital:

- ✓ 134. Regulations made by the Admiralty as to the Duties of the Comptroller of the Greenwich Hospital Estates, and Appointment of the Comptroller of, and Solicitor to the Greenwich Hospital Estates; stating the Salary or Remuneration paid to Mr. Grey, the Manager of a Portion of the Greenwich Hospital Estates - - - - - 351
- ✓ 558. Annual Income of Greenwich Hospital, distinguishing the Sums received by Mr. Grey, by the Accountant General of the Navy, the Paymaster General, or any other Person; Number and Class of the present Inmates of the Hospital, Pensioners, Officers, Medical Staff, &c.; and Stock sold out in pursuance of the Greenwich Hospital Act, 1865, for providing Annuities to the Officers of the Hospital who have Retired, and Sum produced by such Sale; also Names, Ages, and Service of the several Annuitants, with the Amount of their respective Annuities - - - - - 355
- ✓ 168. Amount Paid by Merchant Seamen to Greenwich Hospital up to the Year 1834 - - - - - 359

Gun Vessels :

- ✓ 349. Gun Vessels and Gun Boats under 1,000 tons in Commission and out of Commission on the 1st April 1867; stating in each case how and where Disposed of and Employed; what Condition they were in as to Repair on the 1st April; and at what Date last Repaired; also, their Draught of Water, Tonnage, Horsepower, and Date of Building - - - - - p. 361

Iron :

- ✓ 394. Report of Committee on Metals to the Lords Commissioners of the Admiralty in 1845, on Iron - - - - - 367

Iron Ballast :

- ✓ 559. Total Quantity of Iron Ballast, the Property of the Government, whether "in Store" or "on Charge," Loaned, or otherwise Disposed of, to the Board of Works or other Public Department, or Private Parties, &c. - 737
- ✓ 308. Report of Dr. Percy, of the 8th May 1867, relative to the Quality or Value of the Iron Ballast laid down as Paving in Her Majesty's Dockyards - 461
- ✓ 480. Letter from Colonel Boxer, R.A., Superintendent of the Royal Laboratory at Woolwich, dated the 17th June 1867, relative to the Comments made by Dr. Percy, of the Examination of the Ballast Iron in the Royal Laboratory - 463
- ✓ 540. Letter from Dr. Percy, dated 5th August 1867, on the Question of Iron Ballast - - - - - 467
- ✓ 146. Messrs. Ryland's and other Reports received on the subject of Pig Iron in the Dockyards since August 1866 - - - - - 471

Iron Plated Ships and Batteries :

- ✓ 565. Iron Plated Ships and Batteries Built, Building, or Ordered to be Built (in the same form, and in continuation of Paper, No. 526, of Session 1866) - 483

Lancashire and Cheshire Steam Coals :

- ✓ 563. Report of Messrs. Nicholl and Lynn, to the Admiralty, of the Trials at Wigan of the Steam Coals of South Lancashire and Cheshire - - - - - 491

Lieutenant Brand :

- ✓ 108. Recent Correspondence between the Board of Admiralty and Lieutenant Brand, R.N. - - - - - 513

Marine Officers :

- ✓ 177. Correspondence between the Treasury and the Admiralty relative to the Increase in the Number of General Officers of Marines (Unattached Pay) - - 517

Naval Prize Money, &c. :

- ✓ 37. Receipt and Expenditure of Naval Prize, Bounty, Salvage, and other Moneys, between the 1st April 1865 and the 31st March 1866 - - - - - 523
- ✓ 479. An Account showing the Receipt and Expenditure of Naval Prize, Bounty, Salvage, and other Moneys, between the 1st April 1866 and the 31st March 1867 - - - - - 533

Naval Reserve :

- ✓ 386. Whole Number of Men now Enrolled in the Royal Naval Reserve; distinguishing the Ports, &c. at which they are Enrolled, and of the whole Number Drilled during the Year 1866 - - - - - 545

Naval Savings Bank Act, 1866 :

- ✓ 38. Order in Council, dated the 10th November 1866, relative to the Naval Savings Bank Act - - - - - 549

Naval Savings Bank (The "Victoria") :

- ✓ 342. Sums invested Monthly in the Naval Savings Bank by the Crew of the "Victoria" since it came into Operation - - - - - 557

Promotions :

179. Services and Sea Time of Commanders Wood, Graham, Fitzclarence, and Yorke, at the time of their respective Promotions:—Seniority of each in the rank of Lieutenant:—Regulations under which they were promoted:—And, Recommendations or special Circumstances in connection with those Promotions - - - - - p. 559

Ships "Frederick William," &c. :

538. Correspondence between the Admiralty and Mr. Seely, relating to the Cost of Building the "Frederick William," and the Cost of Repairing the "Brisk" and the "Cadmus" - - - - - 565

Ship "Northumberland" :

353. Date of the Original Contract, and the Price to be paid Messrs. Mare & Co., under the Terms of such Contract, for Her Majesty's Ship "Northumberland":—Correspondence showing the Circumstances under which the Contract was transferred from Messrs. Mare & Co., and subsequently taken by the Millwall Company, and the additional Price agreed to be paid to the Millwall Company before proceeding with the Construction of the Ship:—And, Moneys paid for, or on account of, the "Northumberland" up to the present Date, and the further Sum ordered to be paid, or still owing, on account of such Vessel - - - - - 609

Ships Sold :

560. Number of Ships (whether Steamers or Sailing Vessels) sold by the Admiralty from July 1859 to the present Date, stating severally the Ages of the Ships, the Ages of the Engines, the Number and Weight of spare Screw Propellers, the Tonnage, Horse Power, and the Net Amount of Money obtained for each Ship; also stating against each whether it was Publicly Advertised to be Sold by Auction, or was Sold by Public or Private Tender, to whom Sold, and the Amount, if any, Paid or to be Repaid to each Purchaser by the Admiralty in Repurchasing the Stores returned bearing the Broad Arrow Mark:—And, Official Reports relating to the Sale and Valuation of the said Ships - 621

Vessels of War :

178. Number and Class of Vessels of War, including Surveying Vessels, employed on Foreign and Colonial Service, showing the Station, Tonnage, and Complement of Officers and Men, of each Ship - - - - - 721

Vessels not Armour Plated :

564. Vessels not Armour Plated Building, or Ordered to be Built, during the Year 1867; probable Progress during the Year; when to be Launched; when Completed; and Amount Expended up to the 31st March 1867; and Estimated Amount up to the 31st March 1868 (in the same form and in continuation of Paper, No. 525, of Sess. 1866) - - - - - 727

NAVY ESTIMATES,

FOR

THE YEAR

1867-68,

WITH APPENDIX.



[ACCOUNT of NAVAL OLD STORE MONEYS and EXTRA RECEIPTS in 1865-66.]

(PRESENTED TO PARLIAMENT BY COMMAND OF HER MAJESTY.)

*Ordered, by The House of Commons, to be Printed,
18 February 1867.*

17

TABLE OF CONTENTS.

Statement showing the Net Cost of the Services provided for in the Navy Estimates for the Years 1865-66, 1866-67, and 1867-68 - - - - -	PAGE 3
Abstract of the Sums required for 1867-68, showing the Increase or Decrease as compared with the Sums Voted in 1866-67 - - - - -	4 and 5
Votes for the Effective Service, Nos. 1 to 14 - - - - -	6 to 104
Ditto Non-Effective Service, Nos. 15 and 16 - - - - -	105 to 121
Vote for the Army Department (Conveyance of Troops), No. 17 - - - - -	122
Recapitulation of the Estimates - - - - -	123

APPENDIX.

No. 1.—Statement showing in Detail the Pay and Allowances of Flag Officers and their Retinues; of Officers Superintending Dockyards, &c.; and of Commissioned and other Officers, Petty Officers, Seamen, and Boys - - - - -	referred to at p. 6 - Vote 1	126 to 137
No. 2.—Statement of Special Pay and Allowances to Officers and others for the particular Services specified - - - - -	referred to at p. 6 - , 1	138 to 142
No. 3.—{ Statement showing the Number of Officers, Men, and Boys, More or Less Borne than Voted Statement of the Number of Cadets admitted in 1866 - - - - -	- - - - -	143
No. 4.—Comparative statement of the Number of Ships and Vessels in Commission on 1st December 1865 and 1st December 1866 - - - - -	- - - - -	143
No. 5.—Statement explanatory of the Expense of 16,400 Marines, provided for under Vote No. 1 - - - - -	referred to at p. 7 - Vote 1	144 and 145
No. 6.—Statement of the Expenditure in 1865-66 on account of Marine Contingencies and Allowances - - - - -	" p. 7 - " 1	146
No. 7.—Statement of the whole Charge on account of the Corps of Royal Marines, included under the several Votes of the Estimates - - - - -	" p. 7 - " 1	146
No. 8.—Statement showing the Appropriation of the Messengers, &c. in the Departments of the Principal Officers &c. - - - - -	" p. 15 - " 3	147
No. 9.—Statement of the Expenditure for Rewards, &c., for Scientific Purposes, in the Year 1865-66 - - - - -	" p. 22 - " 5	148
No. 10.—Statement of the Rates of Surveying Pay and Lodging Money of Surveying Officers, provided for in the Estimates - - - - -	" p. 24 - " 5	148
No. 11.—Statement of the Coast and other Surveys in progress at Home and Abroad - - - - -	" p. 24 - " 5	148
No. 12.—Statement of the Number of Steam Ships Afloat and Building, and of the Number of Effective Sailing Ships - - - - -	" p. 56 - " 6	149
No. 13.—Programme of Shipbuilding Works to be undertaken in Her Majesty's Dockyards during the year 1867-68 - - - - -	" p. 56 - " 6	150
No. 14.—Statement of the Number and Description of Workmen authorised as the Establishments at the several Dockyards at Home - - - - -	" p. 56 - " 6	160
No. 15.—Statement of the Distribution of hired Artificers, Labourers, &c. in the several Dockyards at Home - - - - -	" p. 56 - " 6	160
No. 16.—Statement of the Number and Description of Workmen estimated for in the Steam Factories at Home - - - - -	" p. 56 - " 6	161
No. 17.—Statement of the Numbers and Description of Workmen authorised as the Establishments at the several Victualling Yards at Home - - - - -	" p. 68 - " 7	161
No. 18.—Detailed Statement of the Sums required for Works under 500 £. each, taken under Vote No. 11, New Works, &c. - - - - -	" p. 86 to 97 " 11	162
No. 19.—Detailed Statement of the Sums required for Repairs and Maintenance of Buildings - - - - -	" p. 86 to 97 " 11	165
No. 20.—Statement of Pay of Persons temporarily employed on Engineering and Architectural Works and Repairs, provided for under Vote No. 11 - - - - -	" p. 97 - " 11	166
No. 21.—Statement of the Expenditure in the year 1865-66 for Contingencies - - - - -	" p. 104 - " 14	167

STATEMENT showing the NET COST of the SERVICES provided for in the
NAVY ESTIMATES for the Financial Years 1865-66, 1866-67, and 1867-68,
after taking into Account the EXTRA RECEIPTS of the NAVAL DEPART-
MENT payable into the EXCHEQUER.

(Prefixed to the NAVY ESTIMATES in accordance with Treasury Minute of
12th December 1863.)

		£.	s.	d.
1865-66 :				
Navy Estimates 1865-66	- - - - -	10,392,224	-	-
Deduct,—				
Excess of Surpluses over Deficiencies on the ordinary Grants (Surpluses, 338,468 <i>l.</i> 13 <i>s.</i> 11 <i>d.</i> ; Deficiencies, 156,085 <i>l.</i> 3 <i>s.</i> 8 <i>d.</i>)		182,383	10	3
Expenditure, as per Final Account for 1865-66		10,209,840	9	9
Abate,—				
Extra Receipts and Repayments, as per Statement shown at page 168 of these Estimates (1st April 1865 to 31st March 1866)		138,035	8	10
Net Amount of Expenditure for Naval Services for the Year 1865-66, after deducting Extra Receipts and Repayments paid to the Exchequer		£.	10,071,805	- 11
1866-67 :				
Navy Estimates 1866-67	- - - - -	10,434,735	-	-
Extra Receipts and Repayments :		£.	s.	d.
1st April to 31st December 1866		155,214	3	2
Quarter, from 1st January to 31st March 1867 (Estimated)		51,737	16	10
		206,952	-	-
Net Amount, after deducting Estimated Extra Receipts and Repayments paid, or to be paid, to the Exchequer		£.	10,227,783	- -
1867-68 :				
Navy Estimates 1867-68	- - - - -	10,926,253	-	-
Estimated Amount of Extra Receipts and Repayments		450,000	-	-
Net Amount, after deducting Estimated Extra Receipts and Repayments to be paid to the Exchequer		£.	10,476,253	- -

Admiralty, }
15 February 1867.]

J. BEEBY,
Accountant General of the Navy.

AN ESTIMATE of the Sums required to meet the Expenses which may be
Increase and Decrease, as compared with the Sums Voted

Number of Vote.	Page.	A B S T R A C T.									
1	6	WAGES to Seamen and Marines	-	-	-	-	-	-	-	-	-
2	9	VICTUALS and CLOTHING for ditto	-	-	-	-	-	-	-	-	-
3	11	ADMIRALTY OFFICE	-	-	-	-	-	-	-	-	-
4	16	COAST GUARD SERVICE, ROYAL NAVAL COAST VOLUNTEERS, and ROYAL NAVAL RESERVE	-	-	-	-	-	-	-	-	-
5	20	SCIENTIFIC BRANCH	-	-	-	-	-	-	-	-	-
6	26	DOCKYARDS and NAVAL YARDS AT HOME and ABROAD	-	-	-	-	-	-	-	-	-
7	58	VICTUALLING YARDS and TRANSPORT ESTABLISHMENTS AT HOME and ABROAD	-	-	-	-	-	-	-	-	-
8	70	MEDICAL ESTABLISHMENTS AT HOME and ABROAD	-	-	-	-	-	-	-	-	-
9	80	MARINE DIVISIONS	-	-	-	-	-	-	-	-	-
10 Sec. I. and Sec. II.	84 and 85	NAVAL STORES for the Building, Repair, and Outfit of the Fleet and Coast Guard, Steam Machinery and Ships built by Contract:									
		Section I. Storekeeper General of the Navy	-	-	-	-	-	-	-	-	-
		Section II. Controller of the Navy	-	-	-	-	-	-	-	-	-
11	86	NEW WORKS, Buildings, Machinery, and Repairs	-	-	-	-	-	-	-	-	-
12	99	MEDICINES and Medical Stores	-	-	-	-	-	-	-	-	-
13	100	MARTIAL LAW and LAW CHARGES	-	-	-	-	-	-	-	-	-
14	102	MISCELLANEOUS SERVICES	-	-	-	-	-	-	-	-	-
		TOTAL for the EFFECTIVE SERVICE	-	-	-	-	-	-	-	-	£.
15	105	HALF PAY, Reserved Half Pay, and Retired Pay to Officers of the Navy and Royal Marines	-	-	-	-	-	-	-	-	-
16 Sec. I. and Sec. II.	110 and 119	MILITARY and CIVIL PENSIONS and ALLOWANCES:									
		Section I. Military Pensions and Allowances	-	-	-	-	-	-	-	-	-
		Section II. Civil Pensions and Allowances	-	-	-	-	-	-	-	-	-
		TOTAL FOR THE NAVAL SERVICE	-	-	-	-	-	-	-	-	£.
		FOR THE SERVICE OF OTHER DEPARTMENTS OF GOVERNMENT:									
17	122	ARMY DEPARTMENT (Conveyance of Troops)	-	-	-	-	-	-	-	-	-
		GRAND TOTAL	-	-	-	-	-	-	-	-	£.

* These sums include the Votes in the Supplementary Estimate for the additional charge for altering and improving the system of retirement of officers of the Royal Navy, with a view of accelerating promotion, amounting to 12,656 *l.* (see Parliamentary Paper, 9th March 1866, No. 101); in the Supplementary Estimate for increased pay and allowances to the medical officers of the Royal Navy, amounting to 5,926 *l.* (see Parliamentary Paper, 17th July 1866, No. 414); in the Supplementary Estimate for an instalment on a ship to be built on the design of Captain Cowper Coles, amounting to 10,000 *l.* (see Parliamentary Paper, 17th July 1866, No. 415); and in the Supplementary Estimate for the completion of Her Majesty's ship "Northumberland," amounting to 18,000 *l.* (see Parliamentary Paper, 17th July 1866, No. 416).

incurred in the NAVAL DEPARTMENT in the Year 1867-68, showing the for the preceding Year, under the following Heads; viz.

REQUIRED to be Voted for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.	1867/68.		Number of Vote.
		Increase.	Decrease.	
£.	£.	£.	£.	
2,900,952	2,866,559 *	34,393	- - - -	1
1,241,614	1,235,188	6,426	- - - -	2
176,018	173,655	2,363	- - - -	3
267,067	274,119	- - - -	7,052	4
65,106	63,958	1,148	- - - -	5
1,375,368	1,376,971 *	- - - -	1,603	6
86,395	85,624	771	- - - -	7
62,686	59,289 *	3,397	- - - -	8
17,448	15,550	1,898	- - - -	9
855,511	1,003,501	- - - -	147,990	10
860,559	338,000 *	522,559	- - - -	Sec. I.
888,588	892,865	- - - -	4,277	Sec. II.
80,664	75,664	5,000	- - - -	11
21,332	20,605	727	- - - -	12
168,450	105,950 *	62,500	- - - -	13
9,067,758	8,587,498 *	641,182	160,922	14
704,937	701,708 *	3,229	- - - -	15
528,667	528,904	- - - -	237	16
218,915	213,837	5,078	- - - -	Sec. I.
				Sec. II.
10,520,277	10,031,947 *	649,489	161,159	
405,976	402,788	3,188	- - - -	17
10,926,253	10,434,735 *	652,677	161,159	

NET INCREASE - - - £. 491,518.

Note.—The probable amount which will be paid into the Exchequer during the financial year 1867-68, on account of Navy Extra Receipts (for the Sale of Old Ships, &c.), and Repayments, is 450,000*l.*, as shown in the Prefatory Statement, page 3.

JOHN S. PAKINGTON.

C. DU CANE.

NAVY ESTIMATES, FOR THE YEAR 1867-68.

— No. 1. —

WAGES, &c., TO SEAMEN AND MARINES.

Number Voted last Year.	Number for 1867/68.	WAGES, &c., TO SEAMEN.		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
		FLEET—SERVICE AFLOAT.		£. s. d.	£. s. d.
		To defray the Charge of Wages (including Established Allowances) which shall come in course of payment in the year ending on the 31st March 1868, for the following Officers and Seamen to be employed in Her Majesty's Fleet, and other Services; viz. :—			
210	190	For Flag Officers in Commission, and their Retinues, One Hundred and Ninety in number		49,517 - -	52,680 - -
57	57	For Officers superintending Her Majesty's Dockyards and Naval Establishments, and their Retinues, Fifty-seven in number		12,672 - -	12,425 - -
3,676	3,542	For Three Thousand Five Hundred and Forty-two Commissioned and other Officers, above the rank of Subordinate Officers, to be employed in Her Majesty's Fleet		764,546 - -	759,305 - -
301	772	For Seven Hundred and Seventy-two Subordinate Officers		33,387 - -	34,055 - -
1,110	1,153	For One Thousand One Hundred and Fifty-three Warrant Officers		119,310 - -	114,234 - -
31,446	31,301	For Thirty-one Thousand Three Hundred and One Petty Officers and Seamen (including 2,000 l. for increased pay to Naval Schoolmasters)		1,011,430 - -	1,006,349 - -
37,300	37,015	{ 36,050 for Service in the Fleet. 965 for Service in Her Majesty's Troop Ships.	£.	1,990,862 - -	1,979,048 - - and 3,655 - - Supp. Estimate.
		Boys :			
		For Seven Thousand Four Hundred and Eighteen Boys, to be employed as follows; viz. :—			
7,000	7,418	{ 4,250 on Service in the Fleet 68 on Service in Her Majesty's Troop Ships 3,100 under Instruction in Training Ships		74,528 - -	70,503 - -
44,300	44,433	(For Details of the above, see "Explanatory Statement (A. 1)," APPENDIX, No. 1, page 126.)	£.	2,065,390 - -	2,049,551 - - and 3,655 - - Supp. Estimate.
		COAST GUARD SERVICE :			
7,150	7,250	For Two Thousand Nine Hundred and Fifty Officers, Seamen and Boys (340 No.), to be employed in Her Majesty's Coast Guard Service <i>Afloat</i>	No. 2,950	142,988 - -	140,948 - - and 200 - - Supp. Estimate.
		For Four Thousand Three Hundred Officers and Men, to be employed in Her Majesty's Coast Guard Service <i>on Shore</i>	4,300	197,923 - -	184,553 - -
		(Also <i>Civilians</i> , provided for at page 17.)	7,250 450		
		TOTAL for COAST GUARD SERVICE	7,700		
51,450	51,683	(For Details of the above, see "Explanatory Statement (A. 1)," APPENDIX, No. 1, page 126.)	£.	2,406,301 - -	2,375,052 - - and 3,855 - - Supp. Estimate.
		TROOP SHIPS for INDIAN SERVICE, OVERLAND ROUTE.—(Vide Note at foot of page 136.)			
—	1,229	For One Thousand Two Hundred and Twenty-nine Officers, Seamen, and Boys (5 No.), to be employed in Troop Ships for Indian Service		59,089 - -	—
51,450	52,912	TOTAL OF ALL SERVICES,—Carried forward	£.	2,465,390 - -	2,375,052 - - and 3,855 - - Supp. Estimate.
		(For Details of the above, see "Explanatory Statement (A. 1)," APPENDIX, No. 1, page 126.)			

No. 1.—WAGES, &c., to SEAMEN and MARINES—continued.

Number Voted last Year.	Number for 1867 68.	WAGES, &c., TO SEAMEN—continued.		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
				£. s. d.	£. s. d.
51,450	52,912	Brought forward - - -		2,465,390 - -	2,375,052 - - and 3,855 - - Supp. Estimate.
		To provide for Special Pay and Allowances to Officers and other Persons to be employed on particular Services - - - - -		20,351 - -	16,955 - -
		(For Details of "Special Pay, &c.," see "Explanatory Statement (A. 2)," APPENDIX, No. 2, page 138.)			
		To provide for Good Conduct Pay to Petty Officers and Seamen, after certain periods of Service; and for Gratuities to Petty Officers and Seamen, Non-commissioned Officers and Privates of Royal Marines, for distinguished Gallantry in Action; also, for Gratuities in aid of an Outfit to Petty Officers, who may be promoted to be Warrant Officers - - - - -		41,500 - - 600 - -	40,000 - - 200 - -
		To provide for raising Men and Boys for the Fleet - - - - -			
		TOTAL WAGES, &c., to SEAMEN in FLEET, COAST GUARD SERVICE, and INDIAN TROOP SHIPS - } £.		2,527,841 - -	2,432,207 - - and 3,855 - - Supp. Estimate.
		Deduct.—The following Sums for the Services named (which are chargeable to the Votes, &c., specified, but are included above, as the Officers and Men to whom they relate are borne on Ships books, as belonging to the Navy, and are comprised in the Total Number to be voted for the Fleet, &c.), viz. :—			
		The Pay and Allowances of Officers superintending Her Majesty's Dockyards and Naval Establishments, and their Retinues; provision for the same being made in the Estimate for Dockyards, &c. (Vote No. 6, page 26), as part of the Cost of those Establishments -	No. £.		
			- 12,672		
		The Officers and Crews (except Marines), together with their Pay, &c., of Troop Ships, as follows, viz. :—			
		Her Majesty's Troop Ships; provision for the same being made in the Estimate for Transport Service (Vote No. 17, page 122) - - - - -		1,033 55,455	
		Troop Ships for Indian Service (Overland Route); the Cost of which will be defrayed by the Indian Government (<i>vide</i> Note at foot of page 136) -		1,229 59,089	
				127,216 - -	67,034 - -
		NET TOTAL WAGES, &c., to SEAMEN in FLEET and COAST GUARD SERVICE - } £.		2,400,625 - -	2,365,173 - - and 3,855 - - Supp. Estimate.
		(For Details of the foregoing Estimate, see "Explanatory Statement (A. 1 & 2)," APPENDIX, Nos. 1 and 2, pages 126 and 138.)			
		* The Number of Officers, Seamen, and Boys in Her Majesty's Troop Ships was not deducted last year, although the Expense was abated.			
		WAGES, &c., TO MARINES.			
		SERVICE AFLOAT AND ON SHORE.			
120	120	To defray the Charge of Wages which shall come in course of payment in the year ending on the 31st March 1868, for One Hundred and Twenty Staff Officers, &c., of Royal Marines - - - - -		24,923 - -	25,047 - -
420	420	For Four Hundred and Twenty Commissioned Officers of Royal Marines - - - - -		63,284 - -	62,737 - -
15,860	15,860	For Fifteen Thousand Eight Hundred and Sixty Non-commissioned Officers and Privates of Royal Marines - - - - -		333,375 - -	333,049 - -
		Viz. : { Service Afloat - 8,000 { 7,900 for Fleet (including Her Majesty's Troop Ships) 184,074 100 Non-commissioned Officers and Privates for 186,310 Indian Troop Ships - 2,236 Service on Shore, 8,400 { 235,272		421,582 - -	420,833 - -
		To provide for Good Conduct Pay to Non-commissioned Officers and Privates of Royal Marines - - - - -		16,356 - -	15,234 - -
		To provide for Prizes for Good Shooting - - - - -		783 - -	532 - -
		To provide for Beer Money allowed to Marines on Shore (12,927 <i>l.</i>), and excess Cost of Bread and Meat beyond the 4½ <i>d.</i> a day charged as the fixed Cost of the compound Ration (13,000 <i>l.</i>) - - - - -		25,927 - -	22,401 - -
		To provide for Recruiting Expenses, including Bounty, Free Kit, &c. - - - - -		17,300 - -	18,000 - -
		To provide for Colonial Pay and Field Allowances to Marines in San Juan - - - - -		2,000 - -	2,000 - -
		To provide for Contingencies of the Marine Service (for Details of past Expenditure, see APPENDIX, No. 6, page 146) - - - - -		21,000 - -	21,000 - -
		TOTAL WAGES, &c., TO MARINES - - - £.		504,948 - -	500,000 - -
		(For Details of the foregoing Estimate, see "Explanatory Statement (B.)," APPENDIX, No. 5, page 144.)			
		Deduct.—The Marines together with their Pay, &c., employed in Troop Ships, as follows, viz. :—			
		Her Majesty's Troop Ships (<i>Vide</i> Explanation as to Deduction on account of Seamen above) - - - - -		100 2,385	
		Indian Troop Ships (<i>Vide</i> Explanation as to Deduction on account of Seamen above) - - - - -		100 2,236	
				4,621 - -	2,469 - -
		NET TOTAL WAGES, &c., TO MARINES - - - £.		500,327 - -	497,531 - -
		(For the Total Charge for the Marines, see APPENDIX, No. 7, page 146.)			

† The Number of Marines in Her Majesty's Troop Ships was not deducted last year, although the Expense was abated.

No. 1.—WAGES, &c., to SEAMEN and MARINES—*continued.*

Number Voted last Year.	Number for 1867/68.				REQUIRED for the Service of the Year 1867-68.	LAST VOTE for the Financial Year 1866-67.																																					
RECAPITULATION OF THE FOREGOING ESTIMATE:					£. s. d.	£. s. d.																																					
51,450	52,912	TOTAL WAGES, &c., TO SEAMEN IN FLEET, COAST GUARD SERVICE, AND INDIAN TROOP SHIPS - - - - -			2,527,841 - -	2,436,062 - - Including Supp. Estimate.																																					
16,400	16,400	TOTAL, WAGES, &c., TO MARINES - - - - -			504,948 - -	500,000 - -																																					
67,850	69,312	TOTAL - - - £.			3,032,789 - -	2,936,062 - - and Supp. Estimate.																																					
		Deduct,—Pay, &c., of Superintendents of Dockyards, &c. (carried to Vote) No. 6, page 26) - - - - -			£. 12,672																																						
		<table><tr><td rowspan="3">Officers and Crews, &c. of Her Majesty's Troop Ships - - - - -</td><td>No.</td><td>£.</td><td>No.</td><td rowspan="3">} 114,544</td></tr><tr><td>1,033</td><td>55,455</td><td>2,262</td></tr><tr><td>100</td><td>2,385</td><td>Seamen</td></tr><tr><td colspan="2"></td><td>1,133</td><td>57,840</td><td></td></tr><tr><td colspan="2"></td><td colspan="3"></td></tr><tr><td rowspan="3">Officers and Crews, &c., of Indian Troop Ships - - - - -</td><td>No.</td><td>£.</td><td>No.</td><td rowspan="3">} 4,621</td></tr><tr><td>1,229</td><td>59,089</td><td>200</td></tr><tr><td>100</td><td>2,236</td><td>Marines</td></tr><tr><td colspan="2"></td><td>1,329</td><td>61,325</td><td></td></tr></table>			Officers and Crews, &c. of Her Majesty's Troop Ships - - - - -	No.	£.	No.	} 114,544	1,033	55,455	2,262	100	2,385	Seamen			1,133	57,840							Officers and Crews, &c., of Indian Troop Ships - - - - -	No.	£.	No.	} 4,621	1,229	59,089	200	100	2,236	Marines			1,329	61,325			
Officers and Crews, &c. of Her Majesty's Troop Ships - - - - -	No.	£.	No.	} 114,544																																							
	1,033	55,455	2,262																																								
	100	2,385	Seamen																																								
		1,133	57,840																																								
Officers and Crews, &c., of Indian Troop Ships - - - - -	No.	£.	No.	} 4,621																																							
	1,229	59,089	200																																								
	100	2,236	Marines																																								
		1,329	61,325																																								
*1,162 In H.M.'s Troop Ships.	2,462				131,837 - -	69,503 - -																																					
(Carried to Votes, &c., as explained in the foregoing Estimate.)																																											
*66,688	66,850	NET TOTAL - - - £.			2,900,952 - -	2,866,559 - - Including Supplementary Estimate.																																					
550	450	Add, Civilians for Coast Guard Service, <i>see</i> page 17.																																									
*67,238	67,300	TOTAL Force in the Fleet and Coast Guard Service.																																									

* The Number of the Officers and Crews of Her Majesty's Troop Ships was not deducted last year, although the *Expense* was abated.

ABSTRACT of the foregoing Items of Estimate, classified in accordance with the detailed heads of Expenditure in the Admiralty Departmental Ledger, agreeably with the suggestion contained in the Third Report from the Committee of Public Accounts of 1862, and to meet the requirements of the Treasury Minute of the 27th January 1863—(Parliamentary Papers, No. 467, 29 July 1862, p. v, and No. 52, 1863):—

	£.	£. s. d.
Wages to Seamen and Marines <i>Afloat</i> { Seamen <i>Afloat</i> { Minus sums carried to other Votes, &c. } 2,400,025		
{ Marines <i>Afloat</i> { } 189,795		
		2,589,820 - -
Expense of raising Men and Boys for the Fleet - - - - -		600 - -
Subsistence of Commissioned and Staff Officers of Marines <i>on Shore</i> (including Salaries of the Staff) - - - - -		67,113 - -
Subsistence of Non-commissioned Officers and Privates of Marines <i>on Shore</i> - - - - -		202,336 - -
Prizes for Good Shooting to Marines - - - - -		783 - -
Recruiting Expenses, Royal Marines - - - - -		17,300 - -
Colonial Pay and Field Allowances to Marines in San Juan - - - - -		2,000 - -
Contingencies, Marine Service - - - - -		21,000 - -
TOTAL - - - £.		2,900,952 - -

— No. 2. —

VICTUALS AND CLOTHING FOR SEAMEN AND MARINES.

		REQUIRED for the Service of the Year 1867/68.		LAST VOTE for the Financial Year 1866/67.	
PROVISIONS, &c.		£.	s. d.	£.	s. d.
51,200	For the Purchase of Provisions and Victualling Stores and other Charges for Fifty-one Thousand Two Hundred Men and Boys, including Seven Thousand Eight Hundred Royal Marines, and Three Thousand One Hundred Boys in Training Ships, to be employed in Her Majesty's Fleet, and for Two Thousand Nine Hundred and Fifty Men and Boys for Her Majesty's Coast Guard Service Afloat, for One Year, ending the 31st March 1868;				
2,950	also,— For the Purchase of Provisions and Victualling Stores and other Charges for the undermentioned Services, during the same period; viz.				
4,300	For Four Thousand Three Hundred Men to be employed in Her Majesty's Coast Guard Service, and borne on the Books of District Ships for Service on Shore;				
5,000	For Five Thousand Royal Naval Coast Volunteers when on Drill Afloat;				
16,000	For Sixteen Thousand Seamen of the Royal Naval Reserve when on Drill Afloat;				
718	For Seven Hundred and Eighteen Men and Boys, to be employed on board Steam Tugs, Hoys, &c., for Yard Service Afloat; viz.:				
		1867/68.	1866/67.		
For Provisions:		£.	£.		
For the Fleet - - - - -		585,105	619,457		
For Coast Guard Service Afloat - - - - -		33,713	34,940		
For Royal Naval Coast Volunteers Afloat - - - - -		4,552	5,775		
For Yard Service Afloat - - - - -		3,598	3,597		
				626,968	- -
For Savings (Payments for Provisions not taken up):					
For the Fleet - - - - -		135,852	138,715		
For Coast Guard Service Afloat - - - - -		7,827	7,825		
For Yard Service Afloat - - - - -		711	683		
				144,390	- -
For Money Allowances in lieu of Provisions to Officers and Men borne on Ships' Books but not Victualled:					
For the Fleet - - - - -		19,703	21,500		
For Coast Guard Service on Shore - - - - -		104,920	102,200		
For Royal Naval Reserve - - - - -		29,867	29,867		
For Yard Service Afloat - - - - -		8,007	8,646		
				162,497	- -
For Lights and Culinary Fuel for Service Afloat, for - - -		{Fleet - £. 63,046 Yard Service 544}		63,590	- -
For Money Allowance in lieu of Lights to Officers Afloat, for -		{Fleet - £. 19,446 Yard Service 663}		20,109	- -
For Mess Traps - - - - - £. 10,000		} in lieu of Rations to Officers			
For Money Allowance - - - - - £. 56,184				66,184	- -
For the Purchase of Victualling Stores; viz.:					
Coals for Victualling Yards, Casks, Packages, and Small Stores - - -				30,000	- -
For Freight, Lighterage, and other Charges on Provisions and Victualling Stores -				16,500	- -
		£.	1,130,238	- -	1,145,755
Abate,—Allowance in lieu of Provisions, Fuel, and Lights to Superintendents of the Dockyards and their Retinues, Provision being made for the same under Vote No. 6 - - - - - £. 1,797		} These amounts are not this year included in Vote 2.			
Cost of Victualling the Crews of Troop Ships, provided for under Vote No. 17 - - - - - 20,883				22,680	
TOTAL PROVISIONS, &c. - - - £.		1,130,238	- -	1,123,075	- -

No. 2.—VICTUALS and CLOTHING for SEAMEN and MARINES—*continued.*

	REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
	£.	s.	d.	£.	s.	d.
CLOTHING, &c.						
To provide for Seamen's Clothing, Soap, and Tobacco, for the Year 1867-68	217,000					
To provide for Gratuitous Issues of Clothing, &c., to Seamen, Boys, and Marines for Coaling Her Majesty's Steam Vessels	16,540					
To provide for Gratuitous Issues of Bedding to Seamen and Boys on First Entry	8,830					
To provide for Gratuitous Issue of Half Boots (annually) to Marines serving Afloat	2,400					
To provide for a Commuted Allowance in lieu of Gratuitous Issues of Clothing to Ten Years' Continuous Service Men	6,570					
To provide for Gratuitous Issues to Working Parties of the Reserve, Dépôt Ships, and for Wear and Tear of Clothes	3,500					
To provide for the Cost of Caps issued Gratuitously to Seamen of the Royal Naval Reserve	290					
To provide Clothing, &c., for the Use of Royal Naval Coast Volunteers when on Drill Afloat	2,000					
	257,130					
Abate— Estimated Amount of Charges against the Wages of Seamen, &c.	218,170			38,960		40,275
	1867/68.	1866/67.				
	£.	£.				
To provide for Clothing and Appointments of Royal Marines, for Making up and Altering Marine Clothing, and for the Gratuitous Issue of Half Boots and Blue Serge Tunics to Royal Marines	56,559	57,635				
For Money Allowances, in lieu of Clothing, to Royal Marines	5,400	6,121				
	61,959	63,756				
Deduct,—Estimated Amount of Charges against the Wages of Marines on account of Issues	8,120	9,952		53,839		53,804
To provide for Marine Barrack Stores			18,577			19,049
	£.		111,376			113,128
Abate— Gratuitous Issue of Clothing to Crews of Troop Ships, provision being made for the same under Vote No. 17			This amount is not included this year in Vote 2.			1,015
TOTAL CLOTHING, &c.	£.		111,376			112,113
A B S T R A C T:						
TOTAL PROVISIONS, &c. for the FLEET, COAST GUARD SERVICE, &c.			1,130,238			1,145,755
TOTAL CLOTHING, &c. for the FLEET, COAST GUARD SERVICE, &c.			111,376			113,128
	£.		1,241,614			1,258,883
Abate, Allowances in lieu of Provisions to Superintendents of Dock Yards, &c. (carried to Vote No. 6)	£. 1,797		These amounts are not included this year in Vote No. 2.			
Cost of Victualling the Crews of Troop Ships (carried to Vote No. 17)	20,883					
And, Gratuitous Issue of Clothing to ditto (carried to Vote No. 17)	1,015					
					23,695	
TOTAL	£.		1,241,614			1,235,188

No. 3.—ADMIRALTY OFFICE—continued.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
Brought forward - - -	53,432 - -	53,089 - -
Department of the Controller of the Navy—continued.		
Chief Constructor of the Navy - - - - -	1,000 - -	900 - -
Three Assistant Constructors, at 500 l. each - - - - -	1,500 - -	1,500 - -
Surveyor and Inspector of Contract Work - - - - - £. 600 - -		
Allowance for House Rent - - - - - 100 - -	700 - -	700 - -
Seven Draughtsmen { Chief, from 520 l. to 650 l. per annum - - £. 644 - - }	2,147 - -	2,062 - -
to the Controller { One 2d Class, from 315 l. to 500 l. per annum - - 451 - - }		
of the Navy { Five 3d ditto, from 180 l. to 300 l. „ - - 1,052 - - }		
Two Modellers, at 10 s. a day each - - - - -	313 - -	313 - -
Valuer and Inspector of Dockyard Work - - - - -	700 - -	700 - -
Two Assistants to ditto - - - - - { One at £. 450 - - }	800 - -	800 - -
- - - - - { „ 350 - - }		
Engineer in Chief of the Navy - - - - -	900 - -	900 - -
Assistant to ditto (additional Salary of 50 l. not to be continued to Successor) - - -	550 - -	550 - -
Inspector of Machinery Afloat (in addition to Sea Pay) - - - - -	200 - -	200 - -
Draughtsmen { One 2d Class, from 315 l. to 500 l. per annum - - £. 411 - - }	656 - -	631 - -
{ One 3d ditto, from 180 l. to 300 l. „ - - 245 - - }		
Writer and Calculator, from 315 l. to 500 l. per annum - - - - -	445 - -	430 - -
(TOTAL for the Department of the Controller of the Navy - £. 17,796 - -)		
DEPARTMENT OF THE ACCOUNTANT-GENERAL OF THE NAVY:		
Deputy Accountant-General of the Navy - - - - -	900 - -	900 - -
Inspector and Auditor of Yard Accounts, and two Chief Clerks, at 850 l. each - - -	2,550 - -	2,550 - -
CLERKS on the Establishment, at Salaries varying according to Rank and Length of Service; viz.		
	NUMBER.	
	1867/68.	1866/67.
1st Class - - - - -	9	9
2d ditto - - - - -	39	39
3d ditto - - - - -	103	104
	151*	152
Salaries - - - £.	43,078	41,833
from £. 520 to £. 700 per ann.	5,822 - -	5,677 - -
„ 315 to 500 „ -	17,556 - -	17,346 - -
„ 100 to 300 „ -	19,700 - -	18,810 - -
Allowance to Estimate Clerks - - - - -	200 - -	200 - -
Temporary Employment of Clerks and Writers - - - - -	3,446 - -	3,594 - -
(TOTAL for the Department of the Accountant-General - £. 50,174 - -)		
Carried forward - - - £.	113,517 - -	111,852 - -

* One transferred to Vote No. 5, as Civil Assistant to the Hydrographer for Pilotage Duties (see page 23).

No. 3.—ADMIRALTY OFFICE—continued.

				REQUIRED for the Service of the Year 1867-68.			LAST VOTE for the Financial Year 1866-67.		
				£.	s.	d.	£.	s.	d.
Brought forward - - -				113,517	-	-	111,852	-	-
DEPARTMENT of the STOREKEEPER-GENERAL of the NAVY:									
CLERKS on the Establishment, at Salaries varying according to Rank and Length of Service; viz.									
				NUMBER.					
				1867/68.	1866/67.				
1st Class	1st Section	-	-	1	1	from 670 l. to 800 l. per annum	725	-	705
	2d ditto	-	-	1	1	" 520 l. to 650 l. "	532	-	555
2d ditto	-	-	-	5	5	" 315 l. to 500 l. "	1,927	-	1,932
3d ditto	-	-	-	14	14	" 100 l. to 300 l. "	2,561	-	2,499
				21	21				
Salaries	-	-	£.	5,745	5,691				
Temporary Employment of Writers - - -				276	-	-	281	-	-
Pay and Allowances of a Staff Commander, R. N., Chief Engineer, R. N., and Foreman } of a Dockyard, serving as a Committee for checking Store Accounts, &c. - - }				1,283	-	-	1,283	-	-
(TOTAL for the Department of the Storekeeper-General - £. 7,304 - -)									
DEPARTMENT of the COMPTROLLER of VICTUALLING:									
CLERKS on the Establishment, at Salaries varying according to Rank and Length of Service; viz.									
				NUMBER.					
				1867/68.	1866/67.				
Chief Clerk	-	-	-	1	1	at - - - - -	850	-	850
1st Class	1st Section	-	-	1	1	from 670 l. to 800 l. per annum	797	-	777
	2d ditto	-	-	3	3	" 520 l. to 650 l. "	1,950	-	1,950
2d ditto	-	-	-	11	11	" 315 l. to 500 l. "	5,318	-	5,205
3d ditto	-	-	-	25	25	" 100 l. to 300 l. "	4,866	-	4,565
				41	41				
Salaries	-	-	£.	13,781	13,347				
Temporary Employment of Clerks and Writers - - -				1,587	-	-	1,525	-	-
(TOTAL for the Department of the Comptroller of Victualling - £. 15,368 - -)									
DEPARTMENT of the MEDICAL DIRECTOR-GENERAL of the NAVY:									
CLERKS on the Establishment, at Salaries varying according to Rank and Length of Service; viz.									
				NUMBER.					
				1867/68.	1866/67.				
1st Class, 1st Section	-	-	-	1	1	from 670 l. to 800 l. per annum	800	-	800
2d ditto	-	-	-	4	4	" 315 l. to 500 l. "	1,755	-	1,695
3d ditto	-	-	-	9	9	" 100 l. to 300 l. "	1,676	-	1,574
				14	14				
Salaries	-	-	£.	4,231	4,069				
Temporary Employment of Writers - - -				117	-	-	110	-	-
(TOTAL for the Department of the Medical Director-General - £. 4,348 - -)									
Carried forward - - -				£.	140,537	-	-	138,158	-

No. 3.—ADMIRALTY OFFICE—continued.

				REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
				£.	s.	d.	£.	s.	d.
Brought forward - - -				140,537	-	-	138,158	-	-
DEPARTMENT of the DIRECTOR of TRANSPORTS:									
Director of Transports - - - - -				1,200	-	-	1,200	-	-
Military Officer to assist the Director of Transports - - - - -				365	-	-	365	-	-
CLERKS on the Establishment, at Salaries varying according to Rank and Length of Service; viz.									
				NUMBER.					
				1867/68.	1866/67.				
Chief Clerk - - - - -	1	1	at - - - - -	850	-	-	850	-	-
1st Class, 1st Section - - - - -	1	1	from 650 l. to 800 l. per annum	741	-	-	718	-	-
1st Class, 2d Section - - - - -	1	1	„ 520 l. to 650 l. „ -	535	-	-	568	-	-
2d ditto - - - - -	4	4	„ 315 l. to 500 l. „ -	1,620	-	-	1,756	-	-
3d ditto - - - - -	10	10	„ 100 l. to 300 l. „ -	1,449	-	-	1,619	-	-
	17	17							
Salaries - - - £.	5,195	5,511							
Temporary Employment of Writers - - - - -				563	-	-	1,030	-	-
(TOTAL for the Department of the Director of Transports - £. 7,323 - -)									
DEPARTMENT of the DIRECTOR of ENGINEERING and ARCHITECTURAL WORKS:									
Deputy Director of Engineering and Architectural Works (Increase of salary of 100 l. not to be continued to his successor) - - - - -				900	-	-	900	-	-
Examiner of Accounts, Returns, &c., from 350 l. to 500 l. per annum - - - - -				500	-	-	500	-	-
Principal Clerk - - - - - from 350 l. to 500 l. „ - - - - -				384	-	-	369	-	-
Two Clerks and Accountants - - - - - from 90 l. to 300 l. „ - - - - -				480	-	-	470	-	-
Chief Draughtsman - - - - - from 350 l. to 500 l. „ - - - - -				407	-	-	392	-	-
Two Draughtsmen - - - - - from 150 l. to 250 l. „ - - - - -				300	-	-	300	-	-
Clerk of the Works - - - - - from 190 l. to 220 l. „ - - - - -				220	-	-	220	-	-
Temporary Employment of Clerks and Draughtsmen - - - - -				1,341	-	-	1,150	-	-
Allowance for House Rent to Clerk of the Works - - - - -				35	-	-	-	-	-
(TOTAL for the Department of the Director of Works - £. 4,567 - -)									
OFFICE of the REGISTRAR of CONTRACTS and PUBLIC SECURITIES:									
Registrar of Contracts and Public Securities - - - - -				850	-	-	850	-	-
CLERKS on the Establishment, at Salaries varying according to Rank and Length of Service; viz.									
				NUMBER.					
				1867/68.	1866/67.				
1st Class, 1st Section - - - - -	1	1	from 650 l. to 800 l. per annum	695	-	-	670	-	-
2d ditto - - - - -	2	2	„ 315 l. to 500 l. „ -	764	-	-	734	-	-
3d ditto - - - - -	4	4	„ 100 l. to 300 l. „ -	570	-	-	527	-	-
	7	7							
Salaries - - - £.	2,029	1,931							
Temporary Employment of Writers - - - - -				297	-	-	206	-	-
(TOTAL for the Office of the Registrar of Contracts, &c. - £. 3,176 - -)									
Carried forward - - - £.				155,603	-	-	153,552	-	-

No. 3.—ADMIRALTY OFFICE—continued.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
Brought forward - - -	155,603 - -	153,552 - -
MESSENGERS, &c.		
In the DEPARTMENT of the SECRETARY :		
Head Messenger, Whitehall - - - - -	£. 200	
Allowance to ditto as Office Keeper - - - - -	65	
1st Class Messengers, 6 No. { 1 Hall Porter - - - - - £. 150		
{ 4 for Board Room { 2 at 150 l. per annum - 300		
{ 2 at 120 l. " - 240	810 - -	810 - -
{ 1 for First Lord's Office - - - - - 120		
2d Class Messengers, 7 No., from 90 l. to 100 l. per annum - - - - -	670 - -	670 - -
3d Class Messengers, 7 No., from 75 l. to 85 l. - - - - -	540 - -	530 - -
For Wages and Allowances of Messengers and others on Day Pay; viz.:		
2 Extra Messengers, 1 Boy Messenger, 3 Labourers, 1 Watchman, Binder, and Messengers' Allowances - - - - -	754 - -	655 - -
Allowance to Office Keeper to cover the Wages of Female Servants - - - - -	171 - -	171 - -
In the DEPARTMENTS of the PRINCIPAL OFFICERS, &c.:		
Head Messenger, Somerset House - - - - -	150 - -	150 - -
1st Class Messengers, 6 No., at 100 l. each - - - - -	600 - -	600 - -
2d Class Messengers, 14 No., from 85 l. to 90 l. per annum - - - - -	1,232 - -	1,225 - -
3d Class Messengers, 28 No., from 70 l. to 80 l. per annum - - - - -	2,045 - -	2,049 - -
Deptford and Woolwich Messenger - - - - -	80 - -	80 - -
For the Wages and Allowances of 19 Messengers and others on Day Pay, viz.:		
6 Messengers, 1 Assistant Messenger, and 7 Boy Messengers, 3 Labourers, and 2 Temporary Labourers - - - - -	951 - -	943 - -
Allowances to Messengers, &c., for the Charge of Repositories, Cleaning Rooms, &c. - - - - -	707 - -	678 - -
(Note.—For Statement, showing the appropriation of the Messengers, &c., in the Departments of the Principal Officers, &c., see APPENDIX, No. 8, p. 147.)		
Additional Day's Pay to Messengers, for Leap Year - - - - -	6 - -	—
Clothing for Porter and Assistant Porter - - - - -	22 - -	22 - -
For Attendance of Police Officers, and extra Allowances to Messengers, for Watching at Night and Attendance on Sundays - - - - -	352 - -	229 - -
Housekeeper, Somerset House - - - - -	100 - -	100 - -
Housekeeper's Servants - - - - -	660 - -	626 - -
Rents, Rates and Taxes - - - - -	2,600 - -	2,600 - -
Fuel and Lighting, including Gas - - - - -	2,400 - -	2,400 - -
Carriage of Ships' Books, Accounts, Vouchers, Parcels, Postage and Travelling Charges on the Public Service - - - - -	3,300 - -	3,300 - -
Miscellaneous Office Expenses and other Contingencies - - - - -	2,000 - -	2,000 - -
TOTAL - - - £.	176,018 - -	173,655 - -

ABSTRACT of the foregoing Items of Estimate, classified in accordance with the detailed Heads of Expenditure in the Admiralty Departmental Ledger, agreeably with the suggestion contained in the Third Report from the Committee of Public Accounts of 1862, and to meet the requirements of the Treasury Minute of the 27th January 1863 (Parliamentary Papers, No. 467, 29 July 1862, p. 5, and No. 52, 1863):—

	£. s. d.
Salaries—Admiralty Office - - - - -	161,447 - -
Wages - - ditto - - - - -	3,936 - -
Rents, Taxes, and Contingencies - ditto - - - - -	10,635 - -
TOTAL - - - £.	176,018 - -

— No. 4. —

COAST GUARD SERVICE,

(Under Act 19 & 20 Vict. cap. 83);

ROYAL NAVAL COAST VOLUNTEERS,

(Under Act 16 & 17 Vict. cap. 73);

AND

ROYAL NAVAL RESERVE,

(Under Acts 22 & 23 Vict. cap. 40, and 24 & 25 Vict. cap. 129.)

COAST GUARD SERVICE:				REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
DEPARTMENT of the CONTROLLER-GENERAL:				£. s. d.			£. s. d.		
Controller-General (Commodore of the 1st Class.)	-	-	-	—			—		
Deputy Controller-General (Additional Captain.)	-	-	-						
Borne on the books of Her Majesty's Ship "Pembroke," and paid Sea Pay and Allowances, under Vote No. 1.—See APPENDIX, No. 1, p. 128.									
Clerks on the Establishment, at Salaries varying according to Rank and Length of Service, viz.:									
				NUMBER.					
				1867/68.	1866/67.				
1st Class, 2d Section	-	-	-	1	1	from 520 <i>l.</i> to 650 <i>l.</i> per annum	650	-	650
2d Class	-	-	-	3	3	„ 315 <i>l.</i> to 500 <i>l.</i> „	1,233	-	1,305
3d Class	-	-	-	11	11	„ 100 <i>l.</i> to 300 <i>l.</i> „	2,124	-	2,025
				15	15				
Salaries	-	-	£.	4,007	3,980				
Allowance to a Paymaster, R.N., for Naval Duties*							283	-	282 10
Superintendent of Cruisers Building and Repairing (Increase of Salary of 50 <i>l.</i> not to be continued to successor.)							350	-	350
Surveyor of Coast Guard Buildings (Director of Works Department), from 350 <i>l.</i> to 400 <i>l.</i> per annum							400	-	400
Lithographic Printer. (Successor to receive a Salary of 80 <i>l.</i> per annum)							100	-	100
Temporary Employment of a Writer							91	-	—
Messengers { One, 2d Class, from 85 <i>l.</i> to 90 <i>l.</i> per annum - - £. 90 - - } { Two, 3d Class, from 70 <i>l.</i> to 80 <i>l.</i> per annum - - 155 - - }							245	-	245
Allowance to a Messenger for cleaning Rooms and carrying Coals							59	-	59
Rates and Taxes							61	-	61
Travelling Charges and Subsistence Allowances							700	-	700
Rent of Office							106	-	106
Fuel and Lighting, and other Contingent Expenses							180	-	150 10
Salaries						£. 5,476	£.	6,582	6,434
Wages and Allowances						59			
Rents, Taxes and Contingencies						1,047			

* In addition to Half pay.

COAST GUARD SERVICE—continued.

CIVIL OFFICERS and ESTABLISHMENTS ON SHORE:

Pay and Allowances of the undermentioned Officers and Men to be employed in Her Majesty's Coast Guard Service, *on Shore*, and not borne on Ships' Books, viz. :

18	Persons serving as Inspecting Officers of Divisions	2 at 219<i>l.</i> per annum 2 at 200 <i>l.</i> 15<i>s.</i> „ 1 at 182<i>l.</i> 10<i>s.</i> „ 13 at 146 <i>l.</i> „ £. 488 - - 401 10 - 182 10 - 1,898 - -	2,920 - -	2,536 - -
23	Persons, including Marine Officers, serving as Officers in command of Stations	at various rates of Pay, from 100 <i>l.</i> 7 <i>s.</i> 6 <i>d.</i> to 200 <i>l.</i> 15 <i>s.</i> per annum	2,956 - -	4,334 - -
378	Chief Boatmen, Commissioned and other Boatmen, at various rates of Pay, from 54 <i>l.</i> 15 <i>s.</i> to 73 <i>l.</i> per annum		21,608 - -	26,882 - -
17	Mounted Guard :			
	5 Serjeants at 91 <i>l.</i> 5 <i>s.</i> per annum	£. 456 - -		
	5 Corporals at 82 <i>l.</i> 2 <i>s.</i> 6 <i>d.</i> per annum	410 - -	1,377 - -	1,377 - -
	7 Privates at 73 <i>l.</i> per annum	511 - -		
14	Non-Commissioned Officers of Marines employed as Clerks on Shore at 4 <i>s.</i> a day, or 24 <i>s.</i> a week each, in addition to their Pensions, and 2 Clerks to assist Inspecting Commanders		873 - -	873 - -
	Additional Day's Pay for Leap Year to the foregoing		83 - -	
150				
	Living Allowances to Officers and Men unprovided with Quarters		3,200 - -	3,200 - -
	Rents and Insurances of Buildings (Stations, Officers' Houses, and Boatmen's Cottages)		30,900 - -	30,900 - -
	Repairs and Taxes		1,500 - -	1,300 - -
	Allowances to Inspecting Officers of Divisions on Visiting Duty		7,890 - -	8,090 - -
	Expenses of removing Officers and Men and their Families from one Station to another		3,000 - -	3,000 - -
	Allowances to Inspecting Officers of Divisions for the Keep of Horses, and Forage		7,000 - -	7,000 - -
	Allowances to the Mounted Guard			
	Allowances to Ministers of Religion for Spiritual Instruction of the Coast Guard Men and their Families		400 - -	400 - -
	Stationery Allowances (including for Coast Guard Tenders)		1,300 - -	1,300 - -
	Provision of Food, Fuel, and Lighting, and other Contingent Expenses (including Coast Guard Tenders and Royal Naval Coast Volunteers)		8,293 - -	8,308 - -
	Pay of Officers, &c.	£. 29,817 - -		
	Rents, Rates, and Taxes	35,600 - -	£. 93,300 - -	99,500 - -
	Contingencies	27,883 - -		

No. 4.—COAST GUARD SERVICE, ROYAL NAVAL COAST VOLUNTEERS, AND ROYAL NAVAL RESERVE—*continued.*COAST GUARD SERVICE—*continued.*

DRILL OF THE COAST GUARD AND ROYAL NAVAL RESERVE:

	REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
	£.	s.	d.	£.	s.	d.
For Drilling Men belonging to the Coast Guard to the use of the Great Gun - - - - -	1,000	-	-			
For remuneration to Officers of the Coast Guard who are in charge of Batteries when Drilling Royal Naval Reserve Men - - - - -	650	-	-	1,650	-	-
For the Erection and Repair of Batteries for Drilling the Men of the Coast Guard - - - - -	800	-	-			
For ditto ditto Men of the Royal Naval Reserve - - - - -	1,700	-	-	2,500	-	-
	£.			4,150	-	-
TOTAL for the Coast Guard Service - - -	£.	104,032	- -	110,084	-	-

NOTE.—In addition to the Amount provided in the foregoing Vote for the Coast Guard Service, amounting to - - - - -

£. s. d.
104,032 - -

The following Sums are likewise included in the undermentioned Votes of the Navy Estimates for Expenses on account of that Service, viz.:—

	Under Vote.	£.	s.	d.
For Sea-pay to Officers and Crews borne on the Books of Her Majesty's Ships and Vessels to be employed in the Coast Guard Service - - - - -	No. 1.	342,027	-	-
For Victuals, &c. for ditto - - - - -	No. 2.	163,224	-	-
For Supplies to, and Local Purchases of Naval Stores at, Coast Guard Stations - - - - -	No. 10. (Sec. 1.)	15,000	-	-
For Building and Repairing Coast Guard Tenders - - - - -	No. 10. (Sec. 2.)	12,000	-	-
For New Works and Repairs of Buildings, &c. - - - - -	No. 11.	30,230	-	-
For Medical Attendance, Medicines, &c. - - - - -	No. 12.	10,732	-	-
For Civil Pensions of Coast Guard Officers and Men - - - - -	No. 16.	40,998	-	-

614,206 - -

TOTAL CHARGE for the COAST GUARD SERVICE - - - £.

718,238 - -

In addition to the foregoing Expense, 29 Vessels have been lent for the Coast Guard Service since its transfer to the Admiralty, the estimated Value of which is - - - - - £. 35,478

TOTAL Number of MEN to be Employed in Her Majesty's COAST GUARD SERVICE:	Number.
Number to be borne on Ships' Books and employed <i>afloat</i> (provided for under Vote No. 1.) -	2,950
Ditto, but to be employed <i>on Shore</i> (under Vote No. 1.) - - - - -	4,300
Ditto, not borne on Ships' Books, to be employed <i>on Shore</i> (provided for under Vote No. 4.) -	450
TOTAL - - -	7,700

ROYAL NAVAL COAST VOLUNTEERS:

	£.	s.	d.	£.	s.	d.
For Bounty Money to Volunteers, from 1 l. 1 s. to 1 l. 6 s. per man per annum, Conduct Money, Expenses of Billeting, and Wages when <i>afloat</i> , at 1 s. 7 d. a day - -	20,000	-	-	21,000	-	-

NOTE.—A sum of 6,552 l. is taken under Vote No. 2, for the Victualling and Clothing of the Royal Naval Coast Volunteers when on drill *afloat* (provision being made for 5,000 in number.)

No. 4.—COAST GUARD SERVICE, ROYAL NAVAL COAST VOLUNTEERS, AND ROYAL NAVAL RESERVE—continued.

	REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
ROYAL NAVAL RESERVE:						
For Subsistence Allowances for Officers of the Royal Naval Reserve whilst under drill (under Act 24 & 25 Vict. c. 129); viz.:	£.	s.	d.	£.	s.	d.
130 Lieutenants, at 10 s. a day each - - - - -						
90 Sub-Lieutenants, out of the 270 allowed, at 7 s. a day each - - - - -	2,702	-	-	2,702	-	-
For Annual Retainer to 16,000 Seamen of the Royal Naval Reserve, at 6 l. per man per annum - - - - -	£.	s.	d.			
			96,000	-	-	-
For Drill Pay at 1 s. 4 d. a day, and Lodging Allowance at 4 d. a day, for 16,000 men - - - - -			37,333	-	-	-
	133,333	-	-	133,333	-	-
For Medical Fees for Examination of Men, Targets, Repair of Arms, Stationery, Travelling Expenses of Officers Enrolling Men, and of Men to and from Drill, and Miscellaneous Expenses - - - - -	3,000	-	-	3,000	-	-
For Fees to Deputy Registrars of the Royal Naval Reserve for Enrolling Men, &c., and for Clerks, Messengers, &c. - - - - -	4,000	-	-	4,000	-	-
	£.	143,035	-	143,035	-	-

NOTE.—In addition to the Amount provided in the foregoing Vote for the Royal Naval Reserve, amounting to - - - - - £. s. d. 143,035 - -

The following Sums are likewise included in the undermentioned Votes of the Navy Estimates for Expenses on account thereof, viz. :—

	Under Vote.	£.	s.	d.	
For Sea-pay to Officers and Crews of Her Majesty's Ships "Active," "Castor," "Brilliant," "Trincomalee," "Dædalus," "Eagle," "President," and "Winchester," used as Drill Ships for the Royal Naval Reserve - - - - -	No. 1.	25,150	-	-	
For Victuals, &c. for ditto - - - - -	No. 2.	9,201	-	-	
For ditto for the Royal Naval Reserve when on Drill <i>afloat</i> - - - - -	No. 2.	30,157	-	-	
For Supplies of Naval Stores for the above Ships - - - - -	No. 10. (Sec. 1.)	800	-	-	
For Repairs to ditto - - - - -	No. 10. (Sec. 2.)	1,600	-	-	
For Medical Attendance, Medicines, &c. - - - - -	No. 12.	268	-	-	
					67,176 - -
TOTAL CHARGE for the ROYAL NAVAL RESERVE - - - - -		£.	210,211	-	-

A B S T R A C T.

	£.	s.	d.	£.	s.	d.
COAST GUARD SERVICE - - - - -	104,032	-	-	110,084	-	-
ROYAL NAVAL COAST VOLUNTEERS - - - - -	20,000	-	-	21,000	-	-
ROYAL NAVAL RESERVE - - - - -	143,035	-	-	143,035	-	-
TOTAL - - - - -	£.	267,067	-	274,119	-	-

ABSTRACT of the foregoing Items of Estimate classified in accordance with the detailed heads of Expenditure in the Admiralty Departmental Ledger, agreeably with the suggestion contained in the Third Report from the Committee of Public Accounts of 1862, and to meet the requirements of the Treasury Minute of the 27th January 1863 (Parliamentary Papers, No. 467, 29th July 1862, p. v., and No. 52, 1863), viz. :

	£.	s.	d.
Salaries, Coast Guard Office - - - - -	5,476	-	-
Wages and Allowances, ditto - - - - -	59	-	-
Rents, Taxes, and Contingencies, ditto - - - - -	1,047	-	-
Pay of Officers and Men, Coast Guard Establishments on Shore - - - - -	29,817	-	-
Rents, Rates, and Taxes, ditto - - - - -	35,600	-	-
Contingencies, ditto - - - - -	27,883	-	-
Drill of the Coast Guard and Royal Naval Reserve - - - - -	4,150	-	-
Royal Naval Coast Volunteers - - - - -	20,000	-	-
Royal Naval Reserve - - - - -	143,035	-	-
TOTAL - - - - -	£.	267,067	-

— No. 5. —

SCIENTIFIC BRANCH.

										REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.					
ROYAL OBSERVATORY :										£.	s.	d.	£.	s.	d.			
Astronomer Royal										1,000	—	—	1,000	—	—			
First Assistant to ditto										400	—	—	400	—	—			
Second ditto - ditto										300	—	—	300	—	—			
Third ditto - ditto										230	—	—	230	—	—			
Fourth ditto - ditto										180	—	—	180	—	—			
Fifth ditto - ditto										150	—	—	150	—	—			
Sixth ditto - ditto										170	—	—	170	—	—			
Seventh ditto - ditto										170	—	—	170	—	—			
Labourer										47	—	—	47	—	—			
Expenses of Board of Visitors										70	—	—	70	—	—			
Allowances to Assistants in lieu of Houses										260	—	—	260	—	—			
Taxes, Rates, Fuel, Repairs, and other contingent Expenses										1,100	—	—	1,000	—	—			
Galvanic Contingencies										100	—	—	100	—	—			
Expenses of Signal Time Ball at Deal										85	—	—	85	—	—			
Extraordinary Expenses :										Fire-proofing South East Dome			400	—	—			
										Improvement of Roof of ditto			70	—	—			
										Repairs of Buildings			—	—	—	30	—	—
										Collimators for Transit Circle			—	—	—	200	—	—
Salaries - - - £. 2,647 - - }										£. 4,732 - -			4,392 - -					
Contingencies - - - 2,085 - - }																		
OBSERVATORY AT THE CAPE OF GOOD HOPE :																		
Astronomer										600	—	—	600	—	—			
First Assistant to ditto										400	—	—	400	—	—			
Second Assistant to ditto										250	—	—	250	—	—			
Labourer										80	—	—	80	—	—			
For Clerical Assistance in copying and computing the Meridian Work, &c.										262	—	—	157	—	—			
For Incidental Expenses										50	—	—	50	—	—			
For attending to Simon's Bay Time Ball for Her Majesty's Ships										37	—	—	37	—	—			
For Printing Astronomical Observations										100	—	—	100	—	—			
£.										1,779	—	—	1,674	—	—			

No. 5.—SCIENTIFIC BRANCH—continued.

		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.	
		£. s. d.	£. s. d.	
NAUTICAL ALMANACK:				
Salary of the Superintendent - - - - -		500 - -	500 - -	
Computers	£. s. d. Chief Assistant, from £. 250 to £. 300 per annum - - - }	291 - -	1,616 - -	
	3 First Class, from £. 180 to £. 230 per annum - - - }	583 - -		1,534 - -
	7 Second Class, from £. 70 to £. 150 per annum - - - }	742 - -		
Rent, &c., for the Office in Verulam Buildings - -		100 - -	100 - -	
For Sundries - - - - -		100 - -	100 - -	
£.		2,316 - -	2,234 - -	
Number of Nautical Almanacks sold in the five years ended the 31st December 1866; viz.:				
Year.		Number.		
1862 - - - - -		18,845		
1863 - - - - -		20,957		
1864 - - - - -		21,234		
1865 - - - - -		22,045		
1866 - - - - -		21,638		
CHRONOMETERS:				
For the Purchase, Repair, and other Expenses connected with Chronometers - - - - -		1,000 - -	1,250 - -	
COMPASS DEPARTMENT:				
Superintendent of Compasses (in addition to Full Pay and Allowances) - - - - -		182 - -	182 - -	
Assistant to ditto - - - - -		125 - -	104 - -	
Rent of Ground - - - - -		45 - -	45 - -	
Contingent Expenses - - - - -		85 - -	85 - -	
Repairs of Standard Compasses - - - - -		300 - -	300 - -	
Repairs to Compass Observatory - - - - -		25 - -	25 - -	
£.		762 - -	741 - -	

No. 5.—SCIENTIFIC BRANCH—*continued.*

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
REWARDS, EXPERIMENTS, &c.:		
Rewards, Experiments, and other Expenses for Scientific Purposes - - - - - £.	500 - -	500 - -
(For Return of Expenditure of 1865-66, <i>see</i> Appendix, No. 9, p. 148).		
DIRECTOR OF EDUCATION FOR THE ADMIRALTY:		
For Salary of the Director of Education for the Admiralty - - - - - £. s. d.		
	650 - -	
For Commuted Allowance for Subsistence to ditto 250 - - -	900 - -	900 - -
For Travelling Expenses of ditto - - - - -	64 - -	64 - -
(Paid in addition for professional attendance at the Science and Art Department of the Committee of Council on Education, South Kensington; the amount not to exceed in a year 250 <i>l.</i>)		
£.	964 - -	964 - -
SCHOOL OF NAVAL ARCHITECTURE:		
Fees for Students at 25 <i>l.</i> each - - - - -	750 - -	600 - -
Maintenance of Students at 1 <i>l.</i> 1 <i>s.</i> a week each - - -	819 - -	655 - -
<i>Note.</i> —The amount requisite to make up the deficiency in the cost of the School, which is not supplied by the Fees for the Admiralty and Public Students, is taken in the Votes of the Science and Art Department (Civil Service Estimates).		
£.	1,569 - -	1,255 - -
ROYAL UNITED SERVICE INSTITUTION:		
For Annual Contribution towards the Funds of the above Institution - - - - - £.	300 - -	300 - -
LIBRARIES AND MUSEUMS:		
For an Outlay on Books and Specimens for the Libraries and Museums at Haslar and Plymouth Hospitals - £.	100 - -	100 - -

No. 5.—SCIENTIFIC BRANCH—continued.

HYDROGRAPHICAL DEPARTMENT:

	REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
	£.	s.	d.	£.	s.	d.
Hydrographer *	1,000	—	—	1,000	—	—
Chief Naval Assistant, and in charge of the Magnetic Department *	500	—	—	500	—	—
Two Civil Assistants	1,050	—	—	1,050	—	—
	{ One at 600 l. One at 450 l. }			{ One clerk transferred from Vote No. 3 (Accountant General's Department, see p. 12.) }		
Civil Assistant for Pilotage Duties - from £. 315 to £. 500 a year -	323	—	—	250	—	—
Naval Assistant* (to be borne on Ship's Books on a new appointment)	250	—	—	250	—	—
Allowance of 2s. a day to the Naval Assistant, in addition to his Pay	36	—	—	36	—	—
Temporary Assistants preparing Sailing Directions	365	—	—	365	—	—
Superintendent of Charts*	400	—	—	400	—	—
Draughtsmen at Salaries varying according to Rank and length of Service, viz.:						
	NUMBER.					
	1867/68.	1866/67.				
Chief Draughtsman	1	1	from £. 310 to £. 400 per annum	354	—	338 13 7
1st Class	1	1	„ 310 to 350 „	337	—	322 9 8
2nd „	2	2	„ 210 to 300 „	461	—	444 7 7
3rd „	2	2	„ 150 to 200 „	327	—	316 9 2
	6	6				
Salaries - £.	1,479	1,419				
Extra Draughtsman	150	—		150	—	—
Writer	109	—		109	—	—
Messengers and Packers of Charts:						
1st Class, 1 in No.	120	—		120	—	—
2d Class, 1 in No., from £. 85 to £. 90 a year	85	—		85	—	—
3d Class, 2 in No., from £. 70 to £. 80 „	140	—		140	—	—
For Drawing and Engraving Charts - £. 6,000 -	12,000	—	—	12,000	—	—
For Printing and Mounting Charts - 6,000 -						
For Instruments, Repairs, Packing Cases, Books, and other Expenses	1,000	—		1,200	—	—

Number of Charts and Books Sold in the Five Years ended the 31st December 1866,
and Proceeds of the same, viz.:

Year.	Charts. No.	Books. No.	Amount Received and Paid over to Exchequer.
			£. s. d.
1862	74,247	1,242	4,277 1 2
1863	82,099	1,618	5,014 18 3
1864	119,138	2,248	6,420 9 3
1865	83,324 †	—	4,100 19 9
1866	99,082 †	—	5,186 15 10

† Note.—Books are now accounted for by Her Majesty's Stationery Office.

Carried forward - - - £.

19,007 - -

18,674 - -

* In addition to Half-pay.

No. 5.—SCIENTIFIC BRANCH—*continued.*

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
HYDROGRAPHICAL DEPARTMENT— <i>continued.</i>		
Brought forward - - -	19,007 - -	18,674 - -
	£. s. d.	
For the Hire of Vessels and Boats, for Lodging Money, and other Expenses re- lating to Coast and other Surveys - - -	17,599 - -	
For extra Pay to Surveyors and their Assistants at Home - - - - -	2,230 - -	
For extra Pay to Surveyors and their Assistants on Foreign and Colonial Sta- tions - - - - -	9,263 - -	
	* 29,092 - -	28,641 - -
Salaries and Wages - - - £. 6,007 - -	- £. 48,099 - -	47,315 - -
Drawing, Mounting, Printing, and Engraving Charts - - - 12,000 - -		
Contingencies - - - - - 1,000 - -		
Coast and other Surveys - - - 29,092 - -		

A moiety of the charges for the Australian Surveys of South Australia, Queensland, and New South Wales, is defrayed by these several Colonies; the remaining moiety is provided for under this Vote. In the case of the Survey of Victoria, the cost of which, it is estimated, will amount to nearly 13,000 £, charges on account thereof to the extent of 2,500 £. only, will be borne by Imperial Funds, and are provided for under this Vote.

Note.—In addition to the Amount provided, as above,* under the Hydrographical Department as the Estimated Expense of Surveys, amounting to - - - - - £. s. d. 29,092 - -

The following Sums are likewise included in the undermentioned Votes of the Navy Estimates for Expenses of the Surveying Service, viz.:—

	Under Vote.	£. s. d.	
For Sea Pay to the Officers and Crews of Her Majesty's Ships and Vessels employed in the Surveying Service; also the Pay of those employed in hired Vessels and Boats, but borne on the Books of Her Majesty's Ships, viz.:—			
Seamen, &c. - - - £. 30,616			
Marines - - - 700			
	No. 1	31,316 - -	
For Victuals, &c., for ditto - - -	No. 2	7,974 - -	
For Stores, Machinery, and Coals sup- plied to Surveying Ships and Vessels, and also Wear and Tear - - -	No. 6 } & No. 10 }	17,170 - -	
For Medicines, &c., supplied to ditto -	No. 12	98 - -	
For Pilotage of ditto - - - - -	No. 14	30 - -	
		56,588 - -	
TOTAL Charge for the Surveying Service - - -	£.	85,680 - -	

N.B.—For Statement of the Rates of Surveying Pay and Lodging Money of Surveying Officers of each Rank, see APPENDIX, No. 10, page 148; and Note respecting Survey in Progress, see APPENDIX, No. 11, page 148.

No. 5.—SCIENTIFIC BRANCH—continued.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
ESTABLISHMENT FOR SCIENTIFIC EDUCATION AT THE ROYAL NAVAL COLLEGE AT PORTSMOUTH:		
Superintendent (in addition to his Full Pay and Allowances as Captain (2nd Class) of Her Majesty's Ship "Excellent")	258 - -	30 5 5
Professor (increase of Salary of 100 <i>l.</i> not to be continued to his successor) - - - - -	600 - -	600 - -
Mathematical Master - - - - -	- - -	400 - -
Instructor of Fortification and Military and Mechanical Drawing - - - - -	200 - -	200 - -
Teacher of the Sword Exercise - - - - -	175 - -	175 - -
French Instructor for the Royal Marine Cadets on board Her Majesty's Ship "Excellent" - - - - -	100 - -	100 - -
Clerk, from 170 <i>l.</i> to 200 <i>l.</i> per annum - - - - -	200 - -	200 - -
Allowance to ditto for taking charge of the Books, Furniture, &c., of the Establishment - - - - -	20 - -	20 - -
Assistant in the Observatory - - - - -	120 - -	120 - -
Matron - - - - -	70 - -	70 - -
Messenger and Porter - - - - -	- - -	60 - -
Wages and Allowances for 5 Female Servants - - - - -	206 - -	206 - -
Rates and Taxes - - - - -	110 - -	105 - -
Lighting the College with Gas - - - - -	75 - -	75 - -
Allowance in lieu of Stationery to the Superintendent - - - - -	16 - -	16 - -
For keeping up Library of Royal Naval College - - - - -	30 - -	30 - -
Rebinding Library Books - - - - -	- - -	20 - -
Expenses for Lecturing on Chemistry and Steam - - - - -	105 - -	105 - -
For Furniture, repairing Instruments, washing Linen, Postage, Printing, Coals, and other small Expenses - - - - -	700 - -	700 14 7
£.	2,985 - -	3,223 - -

ABSTRACT OF THE SCIENTIFIC BRANCH.

	£. s. d.	£. s. d.
ROYAL OBSERVATORY - - - - -	4,732 - -	4,392 - -
OBSERVATORY AT THE CAPE OF GOOD HOPE - - - - -	1,779 - -	1,674 - -
NAUTICAL ALMANACK - - - - -	2,316 - -	2,234 - -
CHRONOMETERS - - - - -	1,000 - -	1,250 - -
COMPASS DEPARTMENT - - - - -	762 - -	741 - -
REWARDS, EXPERIMENTS, &c. - - - - -	500 - -	500 - -
DIRECTOR OF EDUCATION FOR THE ADMIRALTY - - - - -	964 - -	964 - -
SCHOOL OF NAVAL ARCHITECTURE - - - - -	1,569 - -	1,255 - -
ROYAL UNITED SERVICE INSTITUTION - - - - -	300 - -	300 - -
LIBRARIES AND MUSEUMS - - - - -	100 - -	100 - -
HYDROGRAPHICAL DEPARTMENT - - - - -	48,099 - -	47,315 - -
ESTABLISHMENT FOR SCIENTIFIC EDUCATION AT THE ROYAL NAVAL COLLEGE AT PORTSMOUTH - - - - -	2,985 - -	3,223 - -
TOTAL - - - - - £.	65,106 - -	63,958 - -

No. 6.

DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD.

DOCKYARDS AT HOME.		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
DEPTFORD :			
SALARIED ESTABLISHMENT :			
Superintendent:		£. s. d.	£. s. d.
Addition to his salary as Superintendent of the Victualling Yard, the Dock- yard also being placed under his control (see page 58)	- - -	100 - -	100 - -
Master Attendant and Harbour Master (see Victualling Yard, page 58)	- - -	- - -	- - -
Foreman of Sailmakers	- - -	160 - -	160 - -
Master Shipwright	- - -	500 - -	500 - -
Timber Inspector	- - -	300 - -	300 - -
Boatswain	- - -	190 - -	190 - -
Two Foremen of the Yard, at 250 L. each	- - -	500 - -	500 - -
Gratuity to one of the above	- - -	50 - -	- - -
Converter of Timber	- - -	150 - -	160 - -
Foreman of Smiths	- - -	150 - -	150 - -
Six Inspectors - { Two at - - - £. 150	} Four at - - - 125	800 - -	800 - -
Storekeeper and Cashier			
Foreman of Storehouses	- - -	600 - -	600 - -
Ditto	- - -	120 - -	120 - -
Addition to Salary for duties at Somerset House	- - -	£. 120	- - -
	100	220 - -	220 - -
Clerk of Works - - - - - from 190 L. to 300 L. per annum	- - -	300 - -	300 - -
Clerk and Draughtsman - - - - - „ 90 L. to 300 L. „ „	- - -	180 - -	170 - -
Foreman of Works - - - - - „ 120 L. to 180 L. „ „	- - -	180 - -	180 - -
Staff Surgeon - - - - -	- - -	450 - -	450 - -
Schoolmaster, for the Instruction of Apprentices in the Dockyard, from 150 L. to 200 L. per annum	- - -	200 - -	200 - -
Clerks on the Establishment, at Salaries varying according to Rank and length of Service, viz. :			
	NUMBER.		
	1867/68. 1866/67.		
Senior Clerk - - -	1 1	from 315 L. to 450 L. per annum -	450 - - 450 - -
Clerks - - -	9 9	„ 90 L. to 300 L. ditto -	2,032 - - 1,929 - -
	10 10		
Salaries - - £.	2,482 2,379		
Temporary employment of Writers - - - - -	- - -	258 - -	258 - -
(TOTAL Salaries, exclusive of Accountant's Department, 7,890 L.)			
ACCOUNTANT'S DEPARTMENT :			
Accountant of the Dock and Victualling Yards	- - - £. 500	} 600 - - 600 - -	
Addition to ditto, to make up his previous Salary as Storekeeper of the Victualling Yard	- - - 100		
Inspector of Stores	- - -		
Clerks on the Establishment, at Salaries varying according to Rank and length of Service, viz. :		450 - -	450 - -
	NUMBER.		
	1867/68. 1866/67.		
Senior Clerk - - -	1 1	from 315 L. to 450 L. per annum -	360 - - 345 - -
Clerks - - -	2 2	from 90 L. to 300 L. ditto - -	298 - - 278 - -
	3 3		
Salaries - - £.	658 623		
Temporary employment of Clerks and Writers - - - - -	- - -	297 - -	263 - -
(Total Salaries of Accountant's Department, 2,005 L.)			
Carried forward - - - £.		9,895 - -	9,673 - -

No. 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—continued.

DOCKYARDS AT HOME—continued.						REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
DEPTFORD—continued.						£. s. d.	£. s. d.
Salaried Establishment—continued.							
Brought forward - - -						9,895 - -	9,673 - -
Rent of part of Dockyard - - - - -	-	-	-	-	-	10 - -	10 - -
Rates and Taxes - - - - -	-	-	-	-	-	230 - -	220 - -
Lighting the Yard with Gas - - - - -	-	-	-	-	-	300 - -	300 - -
Rent of Water - - - - -	-	-	-	-	-	125 - -	125 - -
Allowances in lieu of Stationery :							
To the Captain Superintendent - - - - -	-	-	-	-	£. 10	69 - -	69 - -
„ Master Attendant - - - - -	-	-	-	-	4		
„ Master Shipwright - - - - -	-	-	-	-	15		
„ Storekeeper and Cashier - - - - -	-	-	-	-	25		
„ Accountant - - - - -	-	-	-	-	15		
Postage and Travelling Charges on the Public Service, Printing, Advertisements, and other small Expenses - - - - -	-	-	-	-	-	200 - -	250 - -
TOTAL SALARIED ESTABLISHMENT { Salaries - - - - - £. 9,895 Rents, Rates, &c. - - - - - 665 Contingencies - - - - - 269 } £.						10,829 - -	10,647 - -
W A G E S :							
DOCKYARD :							
For the Wages of Shipwrights, other Artificers, and Labourers, viz. :							
						Number of Men.	
						1867/68.	1866/67.
On the Establishment - - - - -	-	-	-	-	-	502	498
Hired Labourers, 1st Class (entitled to Pensions) - - -	-	-	-	-	-	28	34
						530	532
For the Wages of Hired Artificers and Labourers - - -	-	-	-	-	-	311	331
						841	863
TOTAL, Established and Hired - - - £.						47,879 - -	{ 14,503 - - *3,900 - -
For the Wages of Persons employed for Yard Service Afloat, in Steam Tugs, Hoys, &c. - - - - -	-	-	-	-	-	302 - -	333 - -
For the Hire of Teams - - - - -	-	-	-	-	-	605 - -	605 - -
For the Wages, &c., of the Metropolitan Police Force employed in the Dockyard, viz. :	-	-	-	-	-		
1 Chief Inspector - - - - -	-	-	-	-	£. 150	- -	
4 Serjeants - - - - -	-	-	-	-	270	- -	
15 Constables - - - - -	-	-	-	-	812	- -	
20							
Commutation for Clothing, Fuel, and Contingent Expenses, at 3 s. per man per week - - - - -	-	-	-	-	-	156 - -	
						£. 1,388 - -	
Ditto - - for General Superintendence, at 3 s. 4 d. per man per month - - - - -	-	-	-	-	-	40 - -	{ Provided for at page 55.
						1,428 - -	1,365 - -
TOTAL WAGES - - - £.						50,214 - -	{ 50,182 - - *3,900 - -
TOTAL DEPTFORD DOCKYARD - - - £.						61,043 - -	{ 60,829 - - *3,900 - -

* Voted on Supplementary Estimate, 17 July 1866.

No. 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*

DOCKYARDS AT HOME— <i>continued.</i>						REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
WOOLWICH:						£. s. d.	£. s. d.
SALARIED ESTABLISHMENT:							
Commodore Superintendent:							
Sea Pay and Allowances as Captain of the 1st Class, viz.:							
Sea Pay as Captain of the 1st Class, at 1 <i>l.</i> 12 <i>s.</i> 11 <i>d.</i> a day -	£.	600	14	7			
Command Money -		91	5	-			
Allowance in lieu of Provisions, at 1 <i>s.</i> 6 <i>d.</i> a day -		27	7	6			
Ditto, for Fuel and Lights, at 1 <i>l.</i> a month -		13	-	-			
Civil Allowance -		517	12	11			
						1,250	1,000
Retinue of Commodore Superintendent:							
Coxswain and Three Domestics -	£.	126	4	7			
Allowance in lieu of Provisions to ditto, four at 1 <i>s.</i> 6 <i>d.</i> a day each		109	15	5			
						236	236
Master Attendant -						600	600
Foreman of Riggers -						190	190
Master Shipwright -						650	650
Assistant to ditto -						400	400
Timber Inspector -						400	400
Boatswain -						220	220
Master Smith -						250	250
Four Foremen of the Yard, at 250 <i>l.</i> a year each -						1,000	1,000
Gratuity to one of the above -						50	50
One Foreman of the Yard (to superintend the Joiners)						180	180
Converter of Timber -						150	275
Foreman of Smiths -						125	125
Twelve Inspectors -					{ Four at £. 150 Eight at 125 }	1,600	1,600
Chief Engineer and Inspector of Machinery -						650	650
Assistant to ditto -						400	400
Foreman of the Factory -						225	225
Foreman of the Boilermakers -						200	200
Storekeeper -						600	600
Foreman of Storehouses -						120	120
Cashier -						450	450
Timekeeper at Steam Factory -						120	120
Clerk of the Works, from 190 <i>l.</i> to 300 <i>l.</i> per annum -						300	300
Clerk and Draughtsman, from 90 <i>l.</i> to 300 <i>l.</i> per annum -						240	230
Foreman of Works, from 120 <i>l.</i> to 180 <i>l.</i> per annum -						167	157
Staff Surgeon -						500	500
Chaplain* -						350	350
(For additional Salary of 100 <i>l.</i> a year, <i>see</i> Woolwich Marine Infirmary, page 75).							
Schoolmaster, for the Instruction of Apprentices in the Yard, from 150 <i>l.</i> to 200 <i>l.</i> per annum -						200	200
Carried forward -	£.					11,823	11,678

* In addition to Half-pay.

No. 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—continued.

DOCKYARDS AT HOME—continued.				REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
WOOLWICH—continued.					
Salaried Establishment—continued.				£. s. d.	£. s. d.
Brought forward - - - £.				11,823 - -	11,678 - -
Gratuity to Schoolmaster for the Instruction of Naval Engineers - - - -				30 - -	30 - -
Clerks on the Establishment, at Salaries varying according to Rank and Length of Service, viz.:—					
	NUMBER.				
	1867/68.	1866/67.			
Senior Clerks - -	3	3	from £. 315 to £. 450 per annum -	1,245 - -	1,215 - -
Clerks - - -	13	12	„ 90 to 300 „ -	2,384 - -	2,305 - -
	16	15			
Salaries - - £.	3,629	3,520			
Temporary employment of Clerks and Writers - - - - -				1,096 - -	1,333 - -
Additional day's pay to Ditto for Leap Year - - - - -				4 - -	—
(TOTAL Salaries, exclusive of Accountant's Department, £. 16,582.)					
ACCOUNTANT'S DEPARTMENT:					
Accountant - - - - -				500 - -	500 - -
Inspector of Stores - - - - -				300 - -	300 - -
Clerks on the Establishment, at Salaries varying according to Rank and Length of Service, viz.:					
	NUMBER.				
	1867/68.	1866/67.			
Senior Clerk - -	1	1	from £. 315 to £. 450 per annum -	415 - -	400 - -
Clerks - - -	4	4	„ 90 to 300 „ -	657 - -	809 - -
	5	5			
Salaries - - £.	1,072	1,209			
Temporary employment of Clerks and Writers - - - - -				709 - -	723 - -
(TOTAL Salaries of the Accountant's Department, £. 2,581.)					
Allowances for House Rent:				£. s. d.	
Assistant to the Chief Engineer and Inspector of Machinery (Not to be continued to his successor.)				50 - -	
To the Cashier - - - - -				50 - -	
„ Staff Surgeon - - - - -				75 - -	
„ Chaplain - - - - -				50 - -	
„ Assistant Surgeon of H. M. S. „Fisgard” - - - - -				40 - -	
„ Clerk to Superintendent - - - - -				70 - -	
„ Clerk of Works - - - - -				50 - -	
Rates and Taxes - - - - -				385 - -	385 - -
Lighting the Yard and Steam Factory with Gas - - - - -				324 - -	324 - -
Rent of Water - - - - -				1,650 - -	1,500 - -
				375 - -	375 - -
Carried forward - - - £.				21,897 - -	21,877 - -

No. 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*

DOCKYARDS AT HOME— <i>continued.</i>		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866-67.
CHATHAM:		£. s. d.	£. s. d.
SALARIED ESTABLISHMENT.			
Captain Superintendent:			
Sea Pay and Allowances as Captain of the 1st Class, viz.:			
Sea Pay, at 1 <i>l.</i> 12 <i>s.</i> 11 <i>d.</i> a day	£. 600 14 7		
Command Money	91 5 -		
Allowance in lieu of Provisions, at 1 <i>s.</i> 6 <i>d.</i> a day	27 7 6		
Allowance for Lights and Fuel, at 1 <i>l.</i> a month	13 - -		
Civil Allowance	517 12 11		
		1,250 - -	1,000 - -
Retinue of Captain Superintendent:			
Three Domestics	£. 87 - -		
Allowance in lieu of Provisions to ditto, Three at 1 <i>s.</i> 6 <i>d.</i> a day each	82 - -		
		169 - -	236 - -
Master Attendant and Harbour Master -		600 - -	600 - -
Foreman of Spinning Machines -	200 - -	200 - -	200 - -
Foreman of Sailmakers -	160 - -	160 - -	160 - -
Foreman of Ropemakers -	200 - -	200 - -	200 - -
Foreman of Riggers -	190 - -	190 - -	190 - -
Two Layers in the Ropeyard, at 100 <i>l.</i> each	200 - -	200 - -	200 - -
Master Shipwright -		650 - -	650 - -
Two Assistants to ditto, at 400 <i>l.</i> each	800 - -	800 - -	800 - -
Timber Inspector -	400 - -	400 - -	400 - -
Boatswain -	220 - -	220 - -	220 - -
Master Smith -	250 - -	250 - -	250 - -
Five Foremen of the Yard, at 250 <i>l.</i> each	1,250 - -	1,250 - -	1,250 - -
Gratuity to one of the above	50 - -	50 - -	50 - -
Foreman of the Yard, to superintend the Joiners -	180 - -	180 - -	180 - -
Converter of Timber -	150 - -	150 - -	150 - -
Foreman of Smiths -	125 - -	125 - -	125 - -
Ten Inspectors -	{ Two at £.150 each Eight at 125 each }	1,300 - -	1,300 - -
Chief Engineer and Inspector of Machinery -		650 - -	650 - -
Conductor of Metal Mills -	300 - -	300 - -	300 - -
Storekeeper -		600 - -	550 - -
Foreman of Storehouses -	120 - -	120 - -	120 - -
Cashier -		500 - -	500 - -
Assistant Civil Engineer, from 315 <i>l.</i> to 500 <i>l.</i> per annum		£. 435 }	
Allowance to ditto for Special Duties connected with the extension of the Dockyard by Convict Labour	50 }	485 - -	470 - -
Clerk of the Works, from 190 <i>l.</i> to 300 <i>l.</i> per annum		300 - -	300 - -
Clerk and Draughtsman, from 90 <i>l.</i> to 300 <i>l.</i> per annum	180 - -	180 - -	170 - -
* Foreman of the Works, from 120 <i>l.</i> to 180 <i>l.</i> per annum	180 - -	180 - -	180 - -
Staff Surgeon -		500 - -	500 - -
Assisting Surgeon -	300 - -	300 - -	300 - -
Chaplain* -		350 - -	350 - -
Carried forward - - - £.		12,809 - -	12,551 - -

* In addition to Half-pay.

No. 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—continued.

DOCKYARDS AT HOME—continued.				REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.																	
CHATHAM—continued.																						
Salaried Establishment—continued.				£. s. d.	£. s. d.																	
Brought forward - - - £.				12,809 - -	12,551 - -																	
Head Master of the Dockyard School, for instruction of Apprentices in the Yard, from 200 l. to 250 l. per annum - - - - -				250 - -	250 - -																	
Allowance to ditto, for teaching the Junior Engineers - - - - -				25 - -	25 - -																	
Assistant to ditto, from 100 l. to 140 l. per annum - - - - -				100 - -	140 - -																	
Clerks on the Establishment, at Salaries varying according to Rank and Length of Service, viz.:																						
<table><tr><th colspan="2">NUMBER.</th><th rowspan="2"></th></tr><tr><th>1867/68.</th><th>1866/67.</th></tr><tr><td>Senior Clerks -</td><td>3</td><td>3 from £. 315 to £. 450 per annum -</td></tr><tr><td>Clerks - - -</td><td>11</td><td>11 „ 90 to 300 „ -</td></tr><tr><td></td><td>14</td><td>14</td></tr><tr><td>Salaries - £.</td><td>3,692</td><td>3,536</td></tr></table>				NUMBER.			1867/68.	1866/67.	Senior Clerks -	3	3 from £. 315 to £. 450 per annum -	Clerks - - -	11	11 „ 90 to 300 „ -		14	14	Salaries - £.	3,692	3,536	1,209 - -	1,158 - -
NUMBER.																						
1867/68.	1866/67.																					
Senior Clerks -	3	3 from £. 315 to £. 450 per annum -																				
Clerks - - -	11	11 „ 90 to 300 „ -																				
	14	14																				
Salaries - £.	3,692	3,536																				
				2,483 - -	2,378 - -																	
Temporary employment of Clerks and Writers - - - - -				1,178 - -	1,076 - -																	
Additional day's pay to ditto for Leap Year - - - - -				5 - -	-																	
(TOTAL Salaries, exclusive of Accountant's Department, £. 18,059.)																						
ACCOUNTANT'S DEPARTMENT:																						
Accountant - - - - -				600 - -	600 - -																	
Inspector of Stores - - - - -				350 - -	350 - -																	
Clerks on the Establishment, at Salaries varying according to Rank and Length of Service; viz.:																						
<table><tr><th colspan="2">NUMBER.</th><th rowspan="2"></th></tr><tr><th>1867/68.</th><th>1866/67.</th></tr><tr><td>Senior Clerk -</td><td>1</td><td>1 from £. 315 to £. 450 per annum -</td></tr><tr><td>Clerks - - -</td><td>5</td><td>5 „ £. 90 to £. 300 „ -</td></tr><tr><td></td><td>6</td><td>6</td></tr><tr><td>Salaries - £.</td><td>1,233</td><td>1,189</td></tr></table>				NUMBER.			1867/68.	1866/67.	Senior Clerk -	1	1 from £. 315 to £. 450 per annum -	Clerks - - -	5	5 „ £. 90 to £. 300 „ -		6	6	Salaries - £.	1,233	1,189	347 - -	315 - -
NUMBER.																						
1867/68.	1866/67.																					
Senior Clerk -	1	1 from £. 315 to £. 450 per annum -																				
Clerks - - -	5	5 „ £. 90 to £. 300 „ -																				
	6	6																				
Salaries - £.	1,233	1,189																				
				886 - -	874 - -																	
Temporary employment of Writers - - - - -				704 - -	714 - -																	
(TOTAL Salaries of Accountant's Department, £. 2,887).																						
Allowances for House Rent:																						
To the Chaplain (not to be continued to Successor) - - - £. 64 - -																						
To the Assistant Civil Engineer - - - - - 75 - -																						
To the Clerk of Works - - - - - 65 - -																						
To the Conductor of Metal Mills - - - - - 50 - -																						
				254 - -	190 - -																	
Rates and Taxes - - - - -				320 - -	320 - -																	
Lighting the Yard with Gas - - - - -				1,400 - -	1,300 - -																	
Carried forward - - - £.				22,920 - -	22,241 - -																	

No. 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—continued.

DOCKYARDS AT HOME—continued.						REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
CHATHAM—continued.						£.	s.	d.	£.	s.	d.
Salaried Establishment—continued.											
Brought forward - - -						22,920	-	-	22,241	-	-
Allowances in lieu of Stationery—											
To the Captain Superintendent - - - - -					£. 35						
" Master Attendant - - - - -					12						
" Master Shipwright - - - - -					20						
" Chief Engineer - - - - -					8	135	-	-	135	-	-
" Storekeeper - - - - -					25						
" Accountant - - - - -					20						
" Cashier - - - - -					15						
Postage, Travelling Charges on the Public Service, Advertisements, Chapel Allowances, regulating Yard Clock, and other small Expenses - - -						400	-	-	400	-	-
TOTAL SALARIED ESTABLISHMENT { Salaries - £. 20,946 Rents, Rates, &c. 1,974 Contingencies - 535 } £.						23,455	-	-	22,776	-	-
WAGES :											
DOCKYARD :											
For the Wages of Shipwrights, other Artificers, and Labourers, viz. :											
						Number of Men.					
						1867/68.	1866/67.				
On the Establishment - - - - -						1,470	1,466	} 98,699	-	-	98,271
Hired Labourers, 1st Class (entitled to Pensions) - - -						61	66				
						1,531	1,532	} 83,391	-	-	83,819
Wages to Hired Artificers and Labourers - - -						1,740	1,803				
											*300
TOTAL Established and Hired - - -						3,271	3,335	182,090	-	-	182,090
											*300
For the Wages of Persons employed for Yard Service Afloat, in Steam Tugs, Hoys, &c. - - - - -								2,561	-	-	2,427
For the Hire of Teams - - - - -								1,700	-	-	1,793
For the Wages, &c., of the Metropolitan Police Force employed in the Dockyard, &c. (under Act 23 & 24 Vict., c. 135), viz. :											
1 Superintendent - - - - -					£. 207						
3 Inspectors - - - - -					354						
5 Serjeants - - - - -					360						
55 Constables - - - - -					3,084						
64											
Commutation for Clothing, Fuel, and Contingent Expenses at 3s. per man, per week - - - - -						492	-	-			
Ditto - - for General Superintendence at 3s. 4d. per man per month - - - - -						126	-	-			
								4,623	-	-	{ Provided for at page 55.
											4,439
TOTAL WAGES - - - £.						190,974	-	-	{ 190,749	-	-
											* 300
TOTAL CHATHAM DOCKYARD - - - £.						214,429	-	-	{ 213,525	-	-
											* 300

* Voted in the Supplementary Estimate, 17 July 1866.

No. 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD--continued.

DOCKYARDS AT HOME—continued.						REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
SHEERNESS:						£. s. d.	£. s. d.
SALARIED ESTABLISHMENT:							
Captain Superintendent:							
Sea Pay and Allowances as a Captain of the 1st Class, viz.:							
Sea Pay at 1 l. 12 s. 11 d. a day	-	-	-	-	-	£. 600 14 7	
Command Money	-	-	-	-	-	91 5 -	
Allowance in lieu of Provisions at 1 s. 6 d. a day	-	-	-	-	-	27 7 6	
Allowance for Fuel and Lights at £. 1 a month	-	-	-	-	-	13 - -	
Civil Allowance	-	-	-	-	-	267 12 11	
						1,000 - -	1,000 - -
Retinue of Captain Superintendent:							
Coxswain and three Domestics	-	-	-	-	-	£. 126 4 7	
Allowance in lieu of Provisions to ditto, four at 1 s. 6 d. a day each	-	-	-	-	-	109 15 5	
						236 - -	236 - -
Master Attendant and Harbour Master						600 - -	600 - -
Assistant to ditto	-	-	-	-	-	500 - -	500 - -
Master Rigger	-	-	-	-	-	220 - -	220 - -
Foreman of Sailmakers	-	-	-	-	-	180 - -	180 - -
Master Shipwright						600 - -	600 - -
Assistant to ditto	-	-	-	-	-	400 - -	400 - -
Timber Inspector	-	-	-	-	-	300 - -	300 - -
Boatswain	-	-	-	-	-	220 - -	220 - -
Master Smith	-	-	-	-	-	250 - -	250 - -
Four Foremen of the Yard at 250 l. each	-	-	-	-	-	1,000 - -	1,000 - -
Gratuity to one of the above	-	-	-	-	-	50 - -	50 - -
Foreman of the Yard (to superintend the Joiners)	-	-	-	-	-	180 - -	180 - -
Foreman of Caulkers	-	-	-	-	-	180 - -	180 - -
Foreman of Smiths	-	-	-	-	-	125 - -	125 - -
Ten Inspectors	-	-	-	-	-	{ One at £. 170 Two at 150 each Seven at 125 each }	1,345 - -
Engineer (Increase of Salary of 50 l., not to be continued to his successor)						550 - -	550 - -
Foreman of the Factory, from 185 l. to 225 l. per annum	-	-	-	-	-	225 - -	225 - -
Foreman of Boilermakers	-	-	-	-	-	200 - -	180 - -
(Increase of Salary of 20 l. not to be continued to successor.)							
Storekeeper						600 - -	600 - -
Foreman of Storehouses	-	-	-	-	-	120 - -	120 - -
Cashier						500 - -	500 - -
Timekeeper at Steam Factory	-	-	-	-	-	120 - -	120 - -
Clerk of Works, from 190 l. to 300 l. per annum						300 - -	300 - -
Foreman of Works, from 120 l. to 180 l.	-	-	-	-	-	180 - -	180 - -
Staff Surgeon						500 - -	500 - -
Chaplain*						350 - -	350 - -
Schoolmaster, for the instruction of Apprentices in the Yard, from 150 l. to 200 l.						157 - -	200 - -
Carried forward - - - £.						11,188 - -	11,211 - -

* In addition to Half-Pay.

No. 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—continued.

DOCKYARDS AT HOME—continued.				REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.												
SHEERNESS—continued.																	
Salaried Establishment—continued.																	
Brought forward - - -				£. 11,188 s. - d. -	£. 11,211 s. - d. -												
Clerks on the Establishment, at Salaries varying according to Rank and Length of Service, viz.:																	
<table><tr><th colspan="2">NUMBER.</th></tr><tr><th>1867/68.</th><th>1866/67.</th></tr><tr><td>3</td><td>3</td></tr><tr><td>11</td><td>11</td></tr><tr><td>14</td><td>14</td></tr><tr><td>2,702</td><td>2,544</td></tr></table>				NUMBER.		1867/68.	1866/67.	3	3	11	11	14	14	2,702	2,544		
NUMBER.																	
1867/68.	1866/67.																
3	3																
11	11																
14	14																
2,702	2,544																
Senior Clerks -	3	3	from £. 315 to £. 450 per annum -	1,163 - -	1,226 - -												
Clerks -	11	11	„ 90 to 300 „ -	1,539 - -	1,318 - -												
Salaries - - £.	2,702	2,544															
Temporary Employment of Clerks and Writers - - - - -				1,405 - -	1,247 - -												
Additional Days' Pay to ditto for Leap Year - - - - -				7 - -	—												
(TOTAL Salaries, exclusive of Accountant's Department, £. 15,302.)																	
ACCOUNTANT'S DEPARTMENT:																	
Accountant - - - - -				450 - -	450 - -												
Inspector of Stores - - - - -				300 - -	300 - -												
Clerks on the Establishment, at Salaries varying according to Rank and Length of Service, viz.:																	
<table><tr><th colspan="2">NUMBER.</th></tr><tr><th>1867/68.</th><th>1866/67.</th></tr><tr><td>1</td><td>1</td></tr><tr><td>2</td><td>2</td></tr><tr><td>3</td><td>3</td></tr><tr><td>615</td><td>613</td></tr></table>				NUMBER.		1867/68.	1866/67.	1	1	2	2	3	3	615	613		
NUMBER.																	
1867/68.	1866/67.																
1	1																
2	2																
3	3																
615	613																
Senior Clerk	1	1	from £. 315 to £. 450 per annum -	347 - -	315 - -												
Clerks -	2	2	from £. 90 to £. 300 per annum -	268 - -	298 - -												
Salaries - £.	615	613															
Temporary Employment of Writers - - - - -				955 - -	886 - -												
(TOTAL Salaries of Accountant's Department, £. 2,320.)																	
Rates and Taxes - - - - -				525 - -	525 - -												
Lighting the Yard and Steam Factory with Gas - - - - -				700 - -	700 - -												
Allowance to Roman Catholic Priest - - - - -				120 - -	120 - -												
Allowances in lieu of Stationery:																	
To the Captain Superintendent - - - - - £. 35																	
„ Master Attendant - - - - - 12																	
„ Master Shipwright - - - - - 20																	
„ Engineer - - - - - 10																	
„ Storekeeper - - - - - 25																	
„ Accountant - - - - - 20																	
„ Cashier - - - - - 15																	
Postage, Travelling Charges on the Public Service, Advertisements, Chapel Allowances, and other small Expenses - - - - -				400 - -	400 - -												
TOTAL SALARIED ESTABLISHMENT { Salaries - - - £. 17,622 Rents, Rates, &c. - - 1,225 Contingencies - - 657 }				£. 19,504 - -	19,133 - -												

No. 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—continued.

DOCKYARDS AT HOME.—continued.			REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
SHEERNESS—continued.			£. s. d.	£. s. d.
WAGES:				
DOCKYARD:				
For the Wages of Shipwrights, other Artificers, and Labourers, viz. :—				
	Number of Men.			
	1867-68.	1866-67.		
On the Establishment - - - - -	1,046	1,044	70,182 - -	70,053 - -
Hired Labourers, 1st Class (entitled to Pensions) -	25	28		
	1,071	1,072		
For the Wages of Hired Artificers and Labourers - -	221	248	8,035 - -	8,164 - - *800 - -
STEAM FACTORY :				
For the Wages of Artificers and Labourers employed in the Steam Factory - - - - -	583	594	36,277 - -	36,937 - -
TOTAL Established and Hired - - -	1,875	1,914	114,494 - -	115,154 - - *800 - -
For the Wages of Persons employed for Yard Service Afloat, in Steam Tugs, Hoys, &c. - - - - -			3,330 - -	3,177 - -
For the Hire of Teams - - - - -			955 - -	955 - -
For the Wages, &c. of the Metropolitan Police Force employed in the Dock- yard (under Act 23 & 24 Victoria, cap. 135), viz. :—				
1 Chief Inspector - - - - -	£. 150 - -			
3 Inspectors - - - - -	317 - -			
4 Serjeants - - - - -	279 - -			
33 Constables - - - - -	1,814 - -			
41				
Commutation for Clothing, Fuel and Contingent Ex- penses at 3 s. per man per week - - - - -			320 - -	
			£. 2,880 - -	
Ditto - - - for General Superintendence at 3 s. 4 d. per man, per month - - - - -	82 - -		- - -	{ Provided for at page 55.
			2,962 - -	2,994 - -
TOTAL WAGES - - - £.			121,741 - -	{ 122,280 - - *800 - -
TOTAL SHEERNESS DOCKYARD - - - £.			141,245 - -	{ 141,413 - - *800 - -

* Voted in the Supplementary Estimate, 17 July 1866.

VOTE 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—continued.

DOCKYARDS AT HOME—continued.						REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
PORTSMOUTH.						£. s. d.	£. s. d.
SALARIED ESTABLISHMENT.							
Admiral Superintendent :							
Sea Pay and Allowances as a Rear-Admiral, viz. :							
Sea Pay at 3 l. a day	-	-	-	-	£. 1,095	-	-
Table Money at 1 l. 10 s. a day	-	-	-	-	547	10	-
Allowance in lieu of Provisions, at 1 s. 6 d. a day	-	-	-	-	27	10	-
Ditto for Fuel and Lights, at 1 l. per month	-	-	-	-	18	-	-
						1,683	- -
Flag Lieutenant to Admiral Superintendent :							
Sea Pay at 10 s. a day	-	-	-	-	£. 182	10	-
Lodging Allowance	-	-	-	-	50	-	-
Allowance in lieu of Provisions, &c., at 2 s. a day	-	-	-	-	36	10	-
						269	- -
Retinue of Admiral Superintendent :							
Coxswain and five Domestics	-	-	-	-	£. 188	11	8
Allowances in lieu of Provisions to ditto—six at 1 s. 6 d. a day each	-	-	-	-	164	8	4
						353	- -
Master Attendant and Harbour Master						600	- -
Assistant to ditto	-	-	-	-	500	-	-
Master Sailmaker	-	-	-	-	200	-	-
Master Rigger	-	-	-	-	220	-	-
Master Ropemaker	-	-	-	-	250	-	-
Foreman of Ropemakers	-	-	-	-	200	-	-
Layer in the Rope Yard	-	-	-	-	100	-	-
Temporary ditto (in charge of Hired Men)	-	-	-	-	100	-	-
Master Shipwright						650	- -
Two Assistants to ditto, at 400 l. each	-	-	-	-	800	-	-
Timber Inspector	-	-	-	-	400	-	-
Boatswain	-	-	-	-	220	-	-
Master Smith	-	-	-	-	250	-	-
Seven Foremen of the Yard, at 250 l. each	-	-	-	-	1,750	-	-
Gratuity to one of the above	-	-	-	-	50	-	-
Foreman of the Yard (to superintend the Joiners)	-	-	-	-	180	-	-
Foreman of Caulkers	-	-	-	-	180	-	-
Two Converters of Timber	-	-	-	-	275	-	-
Two Foremen of Smiths	-	-	-	-	275	-	-
Seventeen Inspectors	-	-	-	-	2,200	-	-
Chief Engineer and Inspector of Machinery						650	- -
Assistant to ditto	-	-	-	-	500	-	-
Assistant Inspector of Steam Machinery (Increase of salary of 50 l. not to be continued to his successor)	-	-	-	-	300	-	-
Foreman of the Factory, from 185 l. to 225 l. per annum	-	-	-	-	205	-	-
Foreman of Boilermakers	-	-	-	-	200	-	-
Foreman of Fitters, from 180 l. to 200 l. per annum	-	-	-	-	200	-	-
Storekeeper						595	- -
Two Foremen of Storehouses, at 120 l. each	-	-	-	-	240	-	-
Cashier						500	- -
Timekeeper at the Steam Factory	-	-	-	-	120	-	-
Superintending Civil Engineer, from 315 l. to 500 l. per annum	-	-	-	-	£. 500	-	-
Allowance to ditto for special duties	-	-	-	-	100	-	-
Clerk and Accountant, from 90 l. to 300 l. per annum	-	-	-	-	130	-	-
Clerk and Draughtsman, from 90 l. to 300 l. per annum	-	-	-	-	270	-	-
Foreman of Works, from 120 l. to 180 l. per annum	-	-	-	-	£. 180	-	-
Allowance to ditto, whilst employed as Temporary Clerk of the Works	-	-	-	-	40	-	-
Three Foremen of Works, from 120 l. to 180 l. per annum						463	- -
Carried forward						16,898	- -
							16,674 - -

VOTE 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*DOCKYARDS AT HOME—*continued.*PORTSMOUTH—*continued.*Salaried Establishment—*continued.*

DOCKYARDS AT HOME—continued.		REQUIRED for the Service of the Year 1867/68.		LAST VOTE for the Financial Year 1866/67.	
PORTSMOUTH—continued.		£.	s. d.	£.	s. d.
Salaried Establishment—continued.					
Brought forward - - -		31,177	- -	30,692	- -
Lighting the Yard, Steam Factory, and Gun Boat Slips at Haslar with Gas - -		2,230	- -	1,925	- -
Water supplied for Dockyard - - - - -		1,200	- -	1,200	- -
Allowance to Roman Catholic Priest - - - - -		120	- -	120	- -
Allowances in lieu of Stationery—					
To the Admiral Superintendent - - - - - £. 40					
„ Master Attendant - - - - - 12					
„ Master Shipwright - - - - - 20					
„ Chief Engineer and Inspector of Machinery - - - - - 15					
„ Storekeeper - - - - - 25					
„ Accountant - - - - - 20					
„ Cashier - - - - - 15					
„ Chemist - - - - - 2					
		149	- -	149	- -
Postage, Travelling Charges on the Public Service, Advertisements, Chapel Allowances, and other small Expenses - - - - -		850	- -	850	- -
TOTAL SALARIED ESTABLISHMENT { Salaries - - - £. 30,312 - - } { Rents, Rates, &c. - 4,295 - - } £. { Contingencies - 1,119 - - }		35,726	- -	34,936	- -
W A G E S :					
DOCKYARD :					
For the Wages of Shipwrights, other Artificers and Labourers, viz. :—					
		Number of Men.			
		1867/68.	1866/67.		
On the Establishment - - - - -		2,087	2,060	} 139,510 - -	138,663 - -
Hired Labourers, 1st Class (entitled to Pensions) - - -		88	113		
		2,175	2,173	} 93,083 - -	93,930 - -
For the Wages of Hired Artificers and Labourers - - -		1,927	2,005		
STEAM FACTORY :					
For the Wages of Artificers and Labourers employed in the Steam Factory - - - - -		941	941	62,781 - -	62,781 - -
TOTAL Established and Hired - - -		5,043	5,119	295,374 - -	295,374 - -
For the Wages of Persons employed for Yard Service Afloat, in Steam Tugs, Hoys, &c. - - - - -				3,947 - -	3,737 - -
For the Hire of Teams - - - - -				2,067 - -	2,067 - -
For the Wages, &c. of the Metropolitan Police Force employed in the Dockyard, and Gun Boat Slips, Haslar (under Act 23 & 24 Vict. c. 135), viz. :—					
1 Superintendent - - - - - £. 201 - -					
1 Chief Inspector - - - - - 150 - -					
5 Inspectors - - - - - 554 - -					
17 Serjeants - - - - - 1,231 - -					
106 Constables - - - - - 6,140 - -					
130					
Commutation for Clothing, Fuel, and Contingent Expenses at 3 s. per man per week - - - - -			1,006 - -		
			£. 9,282 - -		
Ditto - for General Superintendence at 3 s. 4 d. per man per month - - - - -			258 - -		
			9,540 - -		
				{ Provided for at page 55. 9,039 - -	
TOTAL WAGES - - - £.		310,928	- -	310,217	- -
TOTAL PORTSMOUTH DOCKYARD - - - £.		346,654	- -	345,153	- -

VOTE 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*

DOCKYARDS AT HOME—continued.				REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
DEVONPORT—continued.				£. s. d.	£. s. d.
Brought forward - - -				27,547 - -	27,533 - -
ACCOUNTANT'S DEPARTMENT.					
Accountant - - - - -				600 - -	600 - -
Inspector of Stores - - - - -				350 - -	350 - -
Clerks on the Establishment, at Salaries varying according to Rank and Length of Service; viz.					
	NUMBER.				
	1867/68.	1866/67.			
Senior Clerk -	1	1	from 315 l. to 450 l. per annum -	429 - -	414 - -
Clerks - -	8	8	from 90 l. to 300 l. - ditto -	1,552 - -	1,382 - -
	9	9			
Salaries - £.	1,981	1,796			
Temporary Employment of Clerks and Writers - - - - -				1,338 - -	959 - -
Timekeeper at the Steam Factory - - - - -				- - -	120 - -
(TOTAL Salaries of the Accountant's Department, £. 4,269.)					
Allowances for House Rent—					
To the Chaplain (not to be continued to successor) - - - £. 70 - -					
„ Superintending Civil Engineer - - - - - 75 - -					
„ Clerk of Works - - - - - 50 - -					
„ Master Ropemaker - - - - - 85 - -					
„ Boatwain (Keyham) - - - - - 40 - -					
				270 - -	215 - -
Rent of Ballast Pond - - - - -				15 - -	15 - -
Rent of Premises under St. George's Hall, Stonehouse, for the detention of disorderly Seamen - - - - -				30 - -	30 - -
Rates and Taxes - - - - -				490 - -	435 - -
Lighting the Yard, Steam Factory at Keyham, &c., with Gas - - - - -				1,960 - -	1,460 - -
Rent of Water for Dockyard, Marine Barracks, and Naval Hospital, £. 575 - -					
Ditto - - additional Supply - - - - - 150 - -					
Ditto - - for Steam Factory at Keyham - - - - - 400 - -					
Ditto - - for Port Admiral's House - - - - - 10 - -					
				1,135 - -	1,135 - -
Allowance to Roman Catholic Priest - - - - -				120 - -	120 - -
Carried forward - - - £.				35,836 - -	34,768 - -

VOTE 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*

DOCKYARDS AT HOME—*continued.*

DEVONPORT—continued.

		Brought forward	35,836	34,768
Allowances in lieu of Stationery—				
To the	Admiral Superintendent	£. 40		
"	Master Attendant	16		
"	Master Shipwright	20		
"	Chief Engineer	15		
"	Storekeeper	25		
"	Accountant	20		
"	Cashier	15		
"	Harbour Master	3		
			154	154
Postage, Travelling Charges on the Public Service, Advertisements, Chapel Allowances, and other small Expenses			900	900
TOTAL SALARIED ESTABLISHMENT		£. 36,890	35,822	
WAGES:				
DOCKYARD:				
For the Wages of Shipwrights, and other Artificers and Labourers; viz.:				
		Number of Men.		
		1867/68.	1866/67.	
On the Establishment		1,918	1,921	133,476
Hired Labourers, 1st Class (entitled to Pension)		213	224	
		2,131	2,145	
For the Wages of Hired Artificers and Labourers		443	456	17,874
STEAM FACTORY, KEYHAM.				
For the Wages of Artificers and Labourers employed in the Steam Factory		878	878	51,414
TOTAL Established and Hired		3,452	3,479	202,764
For the Wages of persons employed for Yard Service Afloat, in Steam Tugs, Hoys, &c.			5,709	5,433
For the Hire of Teams			2,038	2,038
For the Wages, &c. of the Metropolitan Police Force employed in the Dockyard and Keyham Factory (under Act 23 and 24 Vict., c. 135), viz.:				
1	Superintendent	£. 201		
1	Chief Inspector	150		
5	Inspectors	553		
15	Serjeants	1,069		
90	Constables	5,199		
112				
Commutation for Clothing, Fuel, and Contingent Expenses, at 3 s. per man per week		866		
		£. 8,038		
Ditto	for General Superintendence, at 3 s. 4 d. per man per month	222		
			8,260	7,700
TOTAL WAGES		£. 218,771	217,935	
TOTAL DEVONPORT DOCKYARD		£. 255,661	253,757	

VOTE 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*

DOCKYARDS AT HOME— <i>continued.</i>		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
PEMBROKE:		£. s. d.	£. s. d.
Captain Superintendent:			
Sea Pay and Allowances as Captain of the First Class, viz.:			
Sea Pay, at 1 l. 12 s. 11 d. a day - - - - -	£. 600 14 7		
Command Money - - - - -	91 5 -		
Allowance in lieu of Provisions, at 1 s. 6 d. a day - - -	27 7 6		
Ditto - for Fuel and Lights, at 1 l. a month - - -	13 - -		
Civil Allowance - - - - -	267 12 11	1,000 - -	1,000 - -
Retinue of Captain Superintendent:			
Coxswain and three Domestics - - - - -	126 4 7		
Allowance in lieu of Provisions to ditto, 4 at 1 s. 6 d. a day each - - - - -	109 15 5	236 - -	236 - -
Master of Her Majesty's Ship "Saturn," doing duty as Queen's Harbour Master and Master Attendant (in addition to Full Pay) - - - - -		50 - -	50 - -
Master Shipwright - - - - -		650 - -	600 - -
Timber Inspector and Inspector of Stores - - - - -	350 - -	350 - -	
Boatswain - - - - -	220 - -	220 - -	
Master Smith - - - - -	250 - -	250 - -	
Three Foremen of the Yard - - - {Senior, at - - - £. 300} {Two at £. 250 each - - - 500}	890 - -	800 - -	
Gratuity to one of the above - - - - -	- - -	50 - -	
Converter of Timber - - - - -	150 - -	150 - -	
Foreman of Smiths - - - - -	125 - -	125 - -	
Nine Inspectors - - - - - {One at £. 170} {Four at 150} {Four at 125}	1,270 - -	1,270 - -	
Foreman of Millwrights (increase of Salary of 50 l., not to be continued to his suc- cessor) - - - - -	200 - -	200 - -	
Storekeeper and Cashier - - - - -	600 - -	600 - -	
Assistant Civil Engineer, from 315 l. to 500 l. per annum - - - - -	500 - -	500 - -	
Clerk and Draughtsman, from 90 l. to 300 l. per annum - - - - -	280 - -	270 - -	
Staff Surgeon - - - - -	450 - -	450 - -	
Chaplain* - - - - -	400 - -	400 - -	
Schoolmaster, for the Instruction of Apprentices in the Yard, from 150 l. to 200 l. per annum - - - - -	153 - -	180 - -	
Ditto, allowance in consideration of teaching the Engineers of the Coast Guard Ships - - - - -	25 - -	25 - -	
Carried forward - - - £.		7,709 - -	7,726 - -

* In addition to Half-pay.

VOTE 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*DOCKYARDS AT HOME—*continued.*PEMBROKE—*continued.*

Brought forward - - -

Clerks on the Establishment, at Salaries varying according to Rank and Length of Service; viz.

		NUMBER.	
		1867/68.	1866/67.
Senior Clerks	-	2	2
Clerks	- - -	6	6
		8	8
Salaries	- £.	2,049	1,930

from 315 *l.* to 450 *l.* per annum -from 90 *l.* to 300 *l.* - ditto -

Temporary Employment of Clerks and Writers - - - - -

Additional day's pay to ditto for Leap Year - - - - -

(TOTAL Salaries, exclusive of Accountant's Department, 10,156 *l.*)

Accountant - - - - -

Clerks on the Establishment, at Salaries varying according to Rank and Length of Service; viz.

		NUMBER.	
		1867/68.	1866/67.
Clerks	- -	3	3
Salaries	- £.	441	590

from 90 *l.* to 300 *l.* per annum -

Temporary Employment of Clerks and Writers - - - - -

(TOTAL Salaries of Accountant's Department, 1,176 *l.*)

Allowances for House Rent:

To the Accountant - - - - - £. 50

To the Clerk acting as Secretary to the Superintendent - - - 50

To the Assistant Civil Engineer - - - - - 50

Rates and Taxes - - - - - 95

Lighting the Yard with Gas - - - - - 750

Allowances in lieu of Stationery:

To the Captain Superintendent - - - - - £. 25

,, Master Shipwright - - - - - 20

,, Storekeeper and Cashier - - - - - 25

,, Timber Inspector and Inspector of Stores - - - - - 5

,, Accountant - - - - - 15

Postage, Travelling Charges on the Public Service, Advertisements, Chapel Allowances, and other small Expenses - - - - -

TOTAL SALARIED ESTABLISHMENT { Salaries - - £. 11,332 - - }
 { Rents, Rates, &c. - 995 - - } £.
 { Contingencies - 390 - - }

REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
£.	s.	d.	£.	s.	d.
7,709	-	-	7,726	-	-
760	-	-	715	-	-
1,289	-	-	1,215	-	-
396	-	-	447	-	-
2	-	-	-	-	-
450	-	-	450	-	-
441	-	-	590	-	-
285	-	-	263	-	-
150	-	-	100	-	-
95	-	-	95	-	-
750	-	-	750	-	-
90	-	-	90	-	-
300	-	-	300	-	-
12,717	-	-	12,741	-	-

VOTE 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*

DOCKYARDS ABROAD.

GIBRALTAR:

Naval Officer in charge of Establishments, &c.:

Sea Pay and Allowances as a Captain of the 1st Class, viz.:

Sea Pay, at 1 <i>l.</i> 12 <i>s.</i> 11 <i>d.</i> a day - - - - -	£. 600 14 7
Command Money - - - - -	91 5 -
Allowance in lieu of Provisions, at 1 <i>s.</i> 6 <i>d.</i> a day - - -	27 7 6
Ditto - for Fuel and Lights, at 1 <i>s.</i> 9 <i>d.</i> a day - - -	31 18 9
Civil Allowance - - - - -	108 - 5

REQUIRED
for the
Service of the Year
1867/68.LAST VOTE
for
the Financial Year
1866/67.

£. s. d.

£. s. d.

859 6 3

859 6 3

Allowance to - - ditto - - to provide Wages for two Servants - - - - -	73 - -
Allowance in lieu of Provisions for two Servants - - -	53 13 9

126 13 9

126 13 9

Allowance to an Engineer, Royal Navy, in addition to full Pay - - - - -	18 - -
Clerk of Works, from 250 <i>l.</i> to 350 <i>l.</i> per annum - - -	350 - -
Two Clerks, from 90 <i>l.</i> to 300 <i>l.</i> per annum - - - - -	401 - -
Temporary Employment of Writers - - - - -	146 - -
Rates and Taxes - - - - -	174 - -
Lighting the Yard with Gas - - - - -	200 - -
Allowance in lieu of Stationery - - - - -	15 - -
Postage and other small Expenses - - - - -	24 - -

TOTAL SALARIED ESTABLISHMENT	Salaries - - - £. 1,901 - -	£.	2,314 - -	2,018 - -
	Rents, Rates, &c. - - 374 - -			
	Contingencies - - 39 - -			

WAGES:

For the Wages of Shipwrights, other Artificers and Labourers, viz.:-

	NUMBERS.			
	1867/68.	1866/67.		
On the Establishment - - - - -	3	3	139 - -	139 - -
Hired Artificers and Labourers - - - - -	(as required)	-	260 - -	260 - -
TOTAL Established and Hired - - - - -	3	3	399 - -	399 - -
Wages of Persons employed for Yard Service Afloat - - - - -	-	-	1,500 - -	1,500 - -
Wages of Police Force employed in the Yard - - - - -	-	-	282 - -	282 - -
TOTAL WAGES - - - - - £.	-	-	2,181 - -	2,181 - -
TOTAL GIBRALTAR NAVAL YARD - - - - - £.	-	-	4,495 - -	4,199 - -

MALTA:

SALARIED ESTABLISHMENT:

Admiral Superintendent:

Sea Pay and Allowances as a Rear Admiral:

Sea Pay, at 3 <i>l.</i> a day - - - - -	£. 1,095 - -
Table Money, at 2 <i>l.</i> a day - - - - -	730 - -
Allowance in lieu of Provisions, at 1 <i>s.</i> 6 <i>d.</i> a day - - -	27 7 6
Allowance for Fuel and Lights, at 1 <i>l.</i> a month - - -	13 - -
Civil Allowance - - - - -	64 12 6

1,930 - -

1,930 - -

Flag Lieutenant to Admiral Superintendent:

Sea Pay, at 10 <i>s.</i> a day - - - - -	£. 182 10 -
Allowance in lieu of Provisions, at 2 <i>s.</i> a day - - -	36 10 -

219 - -

219 - -

Carried forward - - - £.

2,149 - -

2,149 - -

VOTE 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*DOCKYARDS ABROAD—*continued.*MALTA—*continued.*

WAGES.

DOCKYARD:

For the Wages of Shipwrights, other Artificers, and Labourers, viz.:

	Number of Men.		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	1867/68.	1866/67.		
On the Establishment - - - - -	55	57	3,277 - -	3,228 - -
Hired Artificers and Labourers - - - - -	151	163	5,786 - -	5,798 - -
Labour for coaling Vessels - - - - -	—	—	800 - -	800 - -
STEAM FACTORY:				
For the Wages of Artificers and Labourers employed in the Steam Factory - - - - -	{ 84 and 8 permanent }	{ 84 and 8 permanent }	5,504 - -	5,496 - -
TOTAL Established and Hired - - - - -	298	312	15,367 - -	15,322 - -
For the Wages of persons employed for Yard Service afloat in Steam Tugs, Hoys, &c.			659 - -	659 - -
For the Wages of the Police Force employed in the Dockyard - - - - -			2,936 - -	2,910 - -
TOTAL WAGES - - - - £.			18,962 - -	18,891 - -
TOTAL MALTA NAVAL YARD - - - - £.			29,675 - -	29,389 - -

HALIFAX:

SALARIED ESTABLISHMENT:

Naval and Victualling Storekeeper and Accountant - - - - -	500 - -	600 - -
Three Clerks, from 90 l. to 300 l. per annum - - - - -	505 - -	381 - -
Allowance to - ditto - to meet increased cost of living - - - - -	150 - -	100 - -
Temporary Employment of Writers - - - - -	86 - -	128 - -
Rates and Taxes - - - - -	19 - -	19 - -
Lighting the Yard with Gas - - - - -	70 - -	70 - -
Supply of Water by Contract - - - - -	120 - -	120 - -
Allowance to Roman Catholic Priest - - - - -	20 - -	20 - -
Allowance in lieu of Stationery, to the Naval and Victualling Storekeeper and Accountant - - - - -	12 - -	12 - -
Postage, Travelling Charges on the Public Service, Advertisements, and other small Expenses - - - - -	79 - -	79 - -
TOTAL SALARIED ESTABLISHMENT { Salaries - - - £1,241 - - Rents, Rates, &c. 209 - - Contingencies - 111 - - } £.	1,561 - -	1,529 - -

WAGES:

For the Wages of Shipwrights, other Artificers, and Labourers, viz. :—

	Number of Men.			
	1867/68.	1866/67.		
On the Establishment - - - - -	37	37	2,423 - -	2,404 - -
TOTAL WAGES - - - - £.			2,423 - -	2,404 - -
TOTAL HALIFAX NAVAL YARD - - - - £.			3,984 - -	3,933 - -

VOTE 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*

DOCKYARDS ABROAD— <i>continued.</i>		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
SIERRA LEONE:		£. s. d.	£. s. d.
SALARIED ESTABLISHMENT:			
Allowance of 100 <i>l.</i> per annum to the Assistant Commissary General, for superintending the receipt and issue of Provisions and Stores - - - - -		{ (Provided for under Vote No. 7, Victualling Yards, &c.	
WAGES:			
For the Wages of Shipwrights, other Artificers, and Labourers - - - - -		60 - -	60 - -
TOTAL for SIERRA LEONE NAVAL YARD - - - £.		60 - -	60 - -
CAPE OF GOOD HOPE:			
SALARIED ESTABLISHMENT:			
Naval Officer in charge of Establishments:			
Sea Pay and Allowances as Captain of the 1st Class, viz.:			
Sea Pay, at 1 <i>l.</i> 12 <i>s.</i> 11 <i>d.</i> a day - - - - - £. 600 14 7			
Command Money - - - - - 136 17 6			
Allowance in lieu of Provisions, at 1 <i>s.</i> 6 <i>d.</i> a day - 27 7 6			
Ditto - for Fuel and Lights, at 2 <i>s.</i> 3 <i>d.</i> a day - 41 1 3			
Civil Allowance - - - - - 61 19 2		*868 - -	*827 7 6
Retinue of Naval Officer in charge of Establishments:			
Three domestics - - - - - £. 86 13 9			
Allowance in lieu of Provisions to ditto, Three at 1 <i>s.</i> 6 <i>d.</i> a day each - - - - - 82 6 3		169 - -	168 12 6
Additional Master of Flag Ship for service in the Naval Yard (Allowance in addition to his Full Pay) - - - - -		91 - -	91 - -
Allowance to Chaplain (in addition to Full Pay) - - - - -		100 - -	100 - -
Allowance to Chief Engineer (- ditto -) - - - - -		73 - -	73 - -
Clerks -	{ One Senior, from 315 <i>l.</i> to 450 <i>l.</i> per annum - - - £. 437 - - -		
	{ One, from 90 <i>l.</i> to 300 <i>l.</i> per annum - - - 130 - - -	567 - -	543 - -
Allowance to ditto, to meet increased cost of living - - - - -		100 - -	100 - -
Store Porter - - - - -		120 - -	120 - -
Carried forward - - - £.		2,088 - -	2,023 - -

* *Note.*—In addition to the foregoing, the Superintendent is paid the following sums, as Commodore of the 2d Class, for his Naval Duties:

Allowance, at 10 <i>s.</i> a day - - - - -	£. 182 10 -
Table Money, at 20 <i>s.</i> a day - - - - -	365 - -
	£. 547 10 -

VOTE 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—continued.

DOCKYARDS ABROAD— <i>continued.</i>		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
CAPE OF GOOD HOPE— <i>continued.</i>			
Salaried Establishment— <i>continued.</i>		£. s. d.	£. s. d.
Brought forward - - -		2,088 - -	2,023 - -
Allowance to Roman Catholic Priest - - - - -		20 - -	20 - -
Allowances in lieu of Stationery—			
To the Naval Officer in charge - - - - - £. 18 - -			
„ Master borne in Flag Ship for Service in the Yard - 5 10 - -			
„ Chief Engineer - - - - - 4 10 - -		28 - -	28 - -
Postage, Travelling Charges, Advertisements, and other small Expenses - -		130 - -	130 - -
TOTAL SALARIED ESTABLISHMENT {Salaries - - £. 2,088 - - } Contingencies - - 178 - - } £.		2,266 - -	2,201 - -
WAGES:			
For the Wages of Shipwrights, other Artificers and Labourers, viz.:			
	Number of Men.		
	1867/68.	1866/67.	
On the Establishment - - - - -	6	6	605 - -
Hired Artificers and Labourers - - - - -	26	26	1,825 - -
TOTAL WAGES - - - - -	32	32	2,430 - -
TOTAL CAPE OF GOOD HOPE, NAVAL YARD - - - £.		4,696 - -	4,573 - -
TRINCOMALEE:			
SALARIED ESTABLISHMENT:			
Naval and Victualling Storekeeper and Accountant - - - - -		569 - -	550 - -
Two Clerks, from 90 l. to 300 l. per annum - - - - -		335 - -	505 - -
Allowance to ditto, to meet increased cost of living - - - - -		100 - -	100 - -
Allowance to one of the above for performing the Duties of Foreman of Shipwrights - - - - -		- - -	80 - -
Temporary Employment of Writers - - - - -		63 - -	47 - -
Allowances for House Rent—			
To additional Surgeon of Her Majesty's Ship "Octavia" £. 30 - - }		70 - -	60 - -
To a Clerk - - - - - 40 - - }			
Allowance to Roman Catholic Priest - - - - -		10 - -	10 - -
Allowance in lieu of Stationery to the Naval and Victualling Storekeeper and Accountant - - - - -		30 - -	30 - -
Carried forward - - - £.		1,177 - -	1,382 - -

Vote G. - DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—continued.

DOCKYARDS ABROAD—continued.

TRINCOMALEE—continued.

Salaried Establishment—continued.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
Brought forward - - -	1,177 - -	1,382 - -
Allowance for a Horse:		
To the Naval and Victualling Storekeeper and Accountant - £. 42 11 -	85 2 -	85 2 -
„ „ Additional Surgeon of Her Majesty's Ship "Octavia" - 42 11 -		
Postage and other small Expenses - - - - -	9 18 -	9 18 -
TOTAL SALARIED ESTABLISHMENT { Salaries - - - £. 1,067 - - } { Rents, Rates, &c. - - 70 - - } £. { Contingencies - - - 135 - - }	1,272 - -	1,477 - -

WAGES:

For the Wages of Shipwrights, other Artificers, and Labourers, viz.:

	Number of Men.			
	1867/68.	1866/67.		
On the Establishment - - - - -	26	26	497 - -	470 - -
Hired Artificers and Labourers - - - - -	16	16	196 - -	196 - -
TOTAL WAGES - - - - -	42	42	693 - -	666 - -
TOTAL TRINCOMALEE NAVAL YARD - - - £.			1,965 - -	2,143 - -

HONG KONG:

SALARIED ESTABLISHMENT:

Naval Officer in charge of Establishments, &c.:

Sea Pay and Allowances as a Captain of the 1st Class, viz.:

Sea Pay, at 1 <i>l.</i> 12 <i>s.</i> 11 <i>d.</i> a day - - - - -	£. 600 14 7		
Command Money - - - - -	136 17 6		
Allowance in lieu of Fuel and Lights, at 2 <i>s.</i> 3 <i>d.</i> a day - - - - -	41 1 3		
Civil Allowance - - - - -	62 6 8	*841 - -	827 7 6

Retinue of Naval Officer in charge of Establishments:

Coxswain and three Domestics - - - - -	£. 126 10 -		
Allowance in lieu of Provisions to ditto, four at 1 <i>s.</i> 6 <i>d.</i> a day each - - - - -	109 10 -	236 - -	163 12 6

Master Attendant - - - - -		500 - -	500 - -
Master of Her Majesty's Ship "Princess Charlotte," Depôt and Receiving Ship, for charge of Naval Stores, and for acting as Harbour Master (Allowance in addition to Sea Pay) - - - - -		100 - -	100 - -
Naval and Victualling Storekeeper - - - - -		700 - -	600 - -
Accountant - - - - -		700 - -	600 - -
Clerks { Two Senior, from 315 <i>l.</i> to 450 <i>l.</i> per annum - - - £. 750 - - } { Three from 90 <i>l.</i> to 300 <i>l.</i> per annum - - - 368 - - }		1,118 - -	1,079 - -
Allowance to - ditto - to meet increased Cost of living - - - - -		500 - -	500 - -
Temporary employment of Writers - - - - -		700 - -	700 - -

Allowances for House-rent:

To the Master Attendant - - - - -	£. 200 - -		
„ Naval and Victualling Storekeeper - - - - -	200 - -		
„ Accountant - - - - -	200 - -		
„ Established Clerks { Two at 100 <i>l.</i> } { Three at 80 <i>l.</i> }	440 - -	1,240 - -	1,240 - -
„ Inspector of Machinery afloat - - - - -	200 - -		

Carried forward - - - £. 6,635 - - 6,310 - -

* Note.—In addition to the foregoing, the Superintendent is paid the following sums as Commodore of the 2nd Class, for his naval duties:—

Allowance, at 10 <i>s.</i> a day - - - - -	£. 182 10 -
Table money, at 20 <i>s.</i> a day - - - - -	365 - -
	547 10 -

VOTE 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*

DOCKYARDS ABROAD—continued.		REQUIRED for the Service of the Year 1867/68.		LAST VOTE for the Financial Year 1866/67.	
HONG KONG—continued.					
Salaried Establishment—continued.					
Brought forward - - -		£.	s. d.	£.	s. d.
		6,635	- -	6,310	- -
Allowances in lieu of Stationery—					
To the Naval Officer - - - - - £. 12					
,, Naval and Victualling Storekeeper - - - - - 20					
,, Accountant - - - - - 20					
		52	- -	52	- -
Postage, Boat-hire, Advertisements, and other small Expenses - - - - -		250	- -	250	- -
TOTAL SALARIED ESTABLISHMENT { Salaries - - - £. 5,395 - - Rents, Rates, &c. - 1,240 - - Contingencies - 302 - - } £.		6,937	- -	6,612	- -
WAGES:					
For the Wages of Shipwrights, other Artificers, and Labourers, viz.:					
		Number of Men.			
		1867/68.	1866/67.		
On the Establishment - - - - -		*9	- 8	899	- -
Hired Artificers and Labourers - - - - -		137	54	4,017	- -
STEAM FACTORY:					
For the Wages of Artificers and Labourers employed in the Steam Factory - - - - -		63	{ 61 and 11 permanent. }	3,089	- -
TOTAL Established and Hired - - -		209	134	8,005	- -
* Borne on Books of "Princess Charlotte."					
For the Wages of the Police employed in the Yard - - - - -				2,088	- -
TOTAL WAGES - - - £.				10,093	- -
TOTAL HONG KONG NAVAL YARD - - - £.				17,030	- -
ESQUIMALT (VANCOUVER.)					
SALARIED ESTABLISHMENT - - - - -				Provided for under Vote No. 7, Victualling Yards, &c.	
WAGES:					
For the Wages of Artificers, &c.:					
		Number of Men.			
		1867/68.	1866/67.		
On the Establishment - - - - -		1	-	240	- -
TOTAL ESQUIMALT NAVAL ESTABLISHMENT - - -				240	- -
TOTAL OF YARDS AT HOME AND ABROAD - - - £.		1,374,928	- -	{ 1,367,676 - - *8,000 - -	
Abate—					
Labour at the several Yards at Home (£. 27,997) and Abroad (£. 563), in making and repairing Yard Machinery, chargeable to Vote No. 11, New Works, &c., and provided for under that Vote (see page 86) - - -		28,560	- -	28,777	- -
		£.	1,346,368	- -	{ 1,338,899 - - *8,000 - -
Wages of Artificers and Labourers breaking up Old Ships - - -		15,000	- -	15,000	- -
Extra Pay to Artificers, &c. of the Fleet at Home - - -		4,000	- -	4,000	- -
Ditto - - - ditto - - - Abroad - - -		9,000	- -	9,000	- -
Survey Valuation of Stock in the several Dockyards - - -		1,000	- -	1,000	- -
Charges of General Superintendence of the Police Force at Home - - -		{ Provided for under each Yard. }		1,072	- -
TOTAL - - - £.		1,375,368	- -	{ 1,368,971 - - *8,000 - -	

* Voted on the Supplementary Estimate dated 17th July 1866.

No. 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*

A B S T R A C T. - - - - -

	Salaries.		Rents, Rates, Taxes, Gas, and Water.		Contingencies.		Yard Wages.			
							Established.		Hired.	
	1867-68.	1866-67.	1867-68.	1866-67.	1867-68.	1866-67.	1867-68.	1866-67.	1867-68.	1866-67.
AT HOME.										
	£.	£.	£.	£.	£.	£.	£.	£.	£.	£.
DEPTFORD - - -	9,895	9,673	665	655	269	319	33,721	33,376	14,158	{ 14,503 *3,900 }
WOOLWICH - - -	19,163	19,293	2,734	2,584	692	742	70,875	69,019	33,101	{ 34,957 *3,000 }
CHATHAM - - -	20,946	20,431	1,974	1,810	535	535	98,699	98,271	83,391	{ 83,819 *300 }
SHEERNESS - - -	17,622	17,251	1,225	1,225	657	657	70,182	70,053	8,035	{ 8,164 *800 }
PORTSMOUTH - - -	30,312	29,855	4,295	3,962	1,119	1,119	139,510	138,663	93,083	93,930
DEVONPORT - - -	31,816	31,358	3,900	3,290	1,174	1,174	133,476	133,657	17,874	17,693
PEMBROKE - - -	11,332	11,406	995	945	390	390	53,312	53,019	19,201	19,494
HAULBOWLINE - - -	-	-	-	-	-	-	-	-	515	414
TOTAL of YARDS at HOME - } £.	141,086	139,267	15,788	14,471	4,836	4,936	599,775	596,058	269,358	{ 272,974 *8,000 }
ABROAD.										
GIBRALTAR - - -	1,901	1,879	374	100	39	39	139	139	260	260
MALTA - - -	9,577	9,350	948	960	188	188	3,277	3,228	6,586	6,598
HALIFAX - - -	1,241	1,209	209	209	111	111	2,423	2,404	-	-
BERMUDA - - -	3,943	4,079	10	-	106	116	3,636	3,587	5,538	5,538
ANTIGUA - - -	350	350	-	-	36	36	240	240	340	340
JAMAICA - - -	1,236	1,372	121	121	75	75	2,518	2,706	2,638	2,623
ASCENSION - - -	-	-	-	-	-	-	-	-	861	861
SIERRA LEONE - - -	-	-	-	-	-	-	-	-	60	60
CAPE OF GOOD HOPE - -	2,088	2,023	-	-	178	178	605	605	1,825	1,767
TRINCOMALEE - - -	1,067	1,282	70	60	135	135	497	470	196	196
HONG KONG - - -	5,395	5,070	1,240	1,240	302	302	899	1,387	4,017	1,424
ESQUIMAULT - - -	-	-	-	-	-	-	240	-	-	-
TOTAL of YARDS ABROAD - } £.	26,798	26,614	2,972	2,690	1,170	1,180	14,474	14,766	22,321	19,667
TOTAL of YARDS at HOME and ABROAD - } £.	167,884	165,881	18,760	17,161	6,006	6,116	614,249	610,824	291,679	{ 292,641 *8,000 }

Memo. :—

For Statement of the Number of Steam Ships Afloat and Building, and of the Number of Effective Sailing Ships - - - - -

See Appendix, No. 12, p. 149.

For Programme of Shipbuilding Works to be undertaken in Her Majesty's Dockyards during the year 1867-68 - - - - -

,, No. 13, p. 150.

For Statement of the Number and Description of Workmen authorised as the Establishments at the several Dockyards at Home - - - - -

,, No. 14, p. 160.

For Statement of the Distribution of hired Artificers, Labourers, &c. in the several Dockyards at Home - - - - -

,, No. 15, p. 160.

For Statement of the Number and Description of Workmen estimated for in the Steam Factories at Home - - - - -

,, No. 16, p. 161.

No. 6.—DOCKYARDS AND NAVAL YARDS AT HOME AND ABROAD—*continued.*

- - - ABSTRACT.

Factory Wages.		Wages, Yard Service Afloat.		Hire of Teams.		Wages, Police Force.		Required for the Service of the Year 1867-68.	Last Vote for the Financial Year, 1866-67.	AT HOME.
1867-68.	1866-67.	1867-68.	1866-67.	1867-68.	1866-67.	1867-68.	1866-67.	£.	£.	
£.	£.	£.	£.	£.	£.	£.	£.	£.	£.	
-	-	302	333	605	605	1,428	1,365	61,043	{ 60,829 3,900 *	DEPTFORD.
45,030	45,030	2,748	2,555	826	904	3,394	3,344	178,563	{ 178,428 3,000 *	WOOLWICH.
-	-	2,561	2,427	1,700	1,793	4,623	4,439	214,429	{ 213,525 300 *	CHATHAM.
36,277	86,937	3,330	3,177	955	955	2,962	2,994	141,245	{ 141,413 800 *	SHEERNESS.
62,781	62,781	3,947	3,737	2,067	2,067	9,540	9,039	346,654	345,153	PORTSMOUTH.
51,414	51,414	5,709	5,433	2,038	2,038	8,260	7,700	255,661	253,757	DEVONPORT.
-	-	258	333	1,796	1,796	2,382	2,310	89,666	89,693	PEMBROKE.
-	-	-	-	-	-	-	-	515	414	HAULBOWLINE.
195,502	196,162	18,855	17,995	9,987	10,158	32,389	31,191	1,287,776	{ 1,283,212 8,000 *	{ TOTAL OF YARDS AT HOME.
										ABROAD.
-	-	1,500	1,500	-	-	282	282	4,495	4,199	GIBRALTAR.
5,504	5,496	659	659	-	-	2,936	2,910	29,675	29,389	MALTA.
-	-	-	-	-	-	-	-	3,984	3,933	HALIFAX.
1,385	1,385	1,974	1,974	-	-	-	-	16,592	16,679	BERMUDA.
-	-	-	-	-	-	-	-	966	966	ANTIGUA.
-	-	-	-	-	-	-	-	6,588	6,897	JAMAICA.
-	-	-	-	-	-	-	-	861	861	ASCENSION.
-	-	-	-	-	-	-	-	60	60	SIERRA LEONE.
-	-	-	-	-	-	-	-	4,696	4,573	CAPE OF GOOD HOPE.
-	-	-	-	-	-	-	-	1,965	2,143	TRINCOMALEE.
3,089	3,799	-	-	-	-	2,088	1,542	17,030	14,764	HONG KONG.
-	-	-	-	-	-	-	-	240	-	ESQUIMALT.
9,978	10,680	4,133	4,133	-	-	5,306	4,734	87,152	84,464	{ TOTAL OF YARDS ABROAD.
205,480	206,842	22,938	22,128	9,987	10,158	37,895	35,925	1,374,928	{ 1,367,676 8,000 *	{ TOTAL OF YARDS AT HOME AND ABROAD.
Abate—Labour at the several Yards, in Making and Repairing Yard Machinery (chargeable to Vote No. 11, New Works, &c.), and provided for under that Vote (<i>see</i> page 86)								28,560	28,777	
" NET TOTAL - - £.								1,346,368	{ 1,338,899 8,000 *	
Wages of Artificers and Labourers breaking up old Ships - - -								15,000	15,000	
Extra Pay to Artificers, &c. of the Fleet at Home - - -								4,000	4,000	
Ditto - - - ditto - - - Abroad - - -								9,000	9,000	
Survey Valuation of Stock at the several Yards at Home - - -								1,000	1,000	
Charges of General Superintendence of the Police Force at Home - - -								{ Provided for undereach yard.	1,072	
TOTAL - - £.								1,375,368	{ 1,368,971 8,000 *	

* Voted on Supplementary Estimate, dated 17 July 1866.

No. 7.—VICTUALLING YARDS AND TRANSPORT ESTABLISHMENTS AT HOME AND ABROAD—*continued.*

VICTUALLING YARDS— <i>continued.</i>				REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
ROYAL VICTORIA YARD, DEPTFORD— <i>continued.</i>				£. s. d.	£. s. d.
WAGES;					
				Number of Men.	
				1867/68.	1866/67.
For the Wages of Artificers and Labourers, &c. on the Establishment - - - - -				237	237
For the Wages of Victualling Yard Hoys - - - - -				2,381	2,280
For the Wages, Clothing, &c. of the Metropolitan Police Force employed in the Yard (under Act 23 and 24 Vict. c. 135): viz.					
2 Inspectors - - - - -				£. s. d.	
5 Serjeants - - - - -				236 - -	
18 Constables - - - - -				338 - -	
				987 - -	
25					
Commutation for Clothing, Fuel, and Contingent Expenses, at 3s. per Man per Week - - - - -				195 - -	
				£. 1,756 - -	
Commutation for General Superintendence, at 3s. 4d. per Man per Month - - - - -				50 - -	
				- - - {	Provided for under Vote, No. 6, p. 55.
				1,806 - -	1,714 - -
TOTAL WAGES - - - £.				27,147 - -	26,934 - -
TOTAL ROYAL VICTORIA YARD - - - £.				37,355 - -	36,935 - -
ROYAL CLARENCE YARD AT WEEVIL (GOSPORT):					
Captain Superintendent - - - - -				800 - -	800 - -
Master Attendant - - - - -				500 - -	500 - -
Storekeeper and Accountant - - - - -				550 - -	550 - -
CLERKS on the Establishment, at Salaries varying according to Rank and Length of Service; viz.					
				NUMBER.	
				1867/68.	1866/67.
Senior Clerks - - - - -				2	2
Clerks - - - - -				2	2
				4	4
Salaries - - £.				1,395	1,490
from £. 315 to 450 per annum - - -				900 - -	890 - -
„ 90 to 300 „ - - -				495 - -	600 - -
Temporary Employment of Clerks and Writers - - - - -				415 - -	395 - -
Additional day's pay to ditto, for leap year - - - - -				1 - -	- -
Leading Man of Coopers - - - - -				150 - -	150 - -
Leading Man of Millers - - - - -				120 - -	120 - -
Leading Man of Bakers - - - - -				100 - -	100 - -
Carried forward - - - £.				4,031 - -	4,105 - -

No. 7.—VICTUALLING YARDS AND TRANSPORT ESTABLISHMENTS AT HOME AND ABROAD—continued.

VICTUALLING YARDS—continued.

ROYAL CLARENCE YARD AT WEEVIL (GOSPORT)—continued.

	REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
	£.	s.	d.	£.	s.	d.
Brought forward - - -	4,031	-	-	4,105	-	-
DIRECTOR OF WORKS DEPARTMENT:						
Clerk of Works, from 190 l. to 300 l. per annum - - - - -	300	-	-	300	-	-
Foreman of Works, from 120 l. to 180 l. per annum - - - - -	180	-	-	180	-	-
Allowance for House Rent to Clerk of Works - - - - -	50	-	-	50	-	-
Rates and Taxes - - - - -	66	-	-	66	-	-
Lighting the Yard with Gas - - - - -	160	-	-	140	-	-
Allowances in lieu of Stationery - - - - -	27	-	-	27	-	-
Postage and Travelling Charges on the Public Service, Advertisements, Stamps, Pumping, Carting Rubbish, and other small Expenses - - - - -	119	-	-	119	-	-
TOTAL SALARIED ESTABLISHMENT { Salaries - - - - - £. 4,511 - - - Rents, Rates, &c. - - - 276 - - - Contingencies - - - 146 - - - } £.						
	4,933	-	-	4,987	-	-

WAGES:

	Number of Men.			
	1867/68.	1866/67.		
For the Wages of Artificers and Labourers, &c., on the Establish- ment - - - - -	92	91	7,003	- - 6,960 - -
For the Wages of Victualling Yard Hoys - - - - -			1,500	- - 1,432 - -
For the Wages, Clothing, &c. of the Metropolitan Police Force employed in the Yard (under Act 23 & 24 Vict. c. 135), viz.:				
1 Inspector - - - - -	£.	s.	d.	
3 Serjeants - - - - -	118	-	-	
16 Constables - - - - -	202	-	-	
	908	-	-	
20				
Commutation for Clothing, Fuel, and Contingent Expenses at 3s. per man per week - - - - -	156	-	-	
	£.	1,384	-	-
Commutation for General Superintendence at 3s. 4d. per man per month - - - - -	40	-	-	
		1,424	-	- { Provided for under Vote No 6, page 55.
TOTAL WAGES - - - - -	£.	9,927	-	- 9,749 - -

TOTAL ROYAL CLARENCE YARD - - - - - £. 14,860 - - 14,736 - -

ROYAL WILLIAM YARD, AT CREMILL (PLYMOUTH):

SALARIED ESTABLISHMENT:

Captain Superintendent - - - - -	800	-	-	800	-	-
Master Attendant - - - - -	500	-	-	500	-	-
Storekeeper and Accountant - - - - -	558	-	-	600	-	-

CLERKS on the Establishment, at Salaries varying according to Rank and Length of Service, viz.:

		NUMBER.				
		1867/68.	1866/67.			
Senior Clerks - - - - -	2	2	from £. 315 to £. 450 per annum - - -	900	-	- 874 - -
Clerks - - - - -	2	2	„ 90 to 300 „ - - -	434	-	- 424 - -
	4	4				
Salaries - - - - -	£.	1,334	1,298			
Carried forward - - - - -	£.	3,192	-	- 3,198 - -		

No. 7.—VICTUALLING YARDS AND TRANSPORT ESTABLISHMENTS AT HOME AND ABROAD—*continued.*VICTUALLING YARDS—*continued.*ROYAL WILLIAM YARD AT CREMILL (PLYMOUTH)—*continued.*Salaried Establishment—*continued.*

	REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
	£.	s.	d.	£.	s.	d.
Brought forward - - -	3,192	-	-	3,198	-	-
Temporary Employment of Writers - - -	258	-	-	272	-	-
Additional day's pay to ditto for leap year - - -	1	-	-	-	-	-
Labourer in charge at Brixham - - -	34	-	-	34	-	-
Leading Man of Coopers - - -	150	-	-	150	-	-
Leading Man of Millers - - -	120	-	-	120	-	-
Leading Man of Bakers - - -	100	-	-	100	-	-
DIRECTOR OF WORKS DEPARTMENT:						
Clerk of Works, from 190 <i>l.</i> to 300 <i>l.</i> per annum - - -	300	-	-	300	-	-
Clerk and Accountant, from 90 <i>l.</i> to 300 <i>l.</i> per annum - - -	193	-	-	180	-	-
Foreman of Works, from 120 <i>l.</i> to 180 <i>l.</i> per annum - - -	180	-	-	180	-	-
Allowances for House Rent - - - {To Superintendent's Secretary, £. 50 To Clerk of Works - - - 50}	100	-	-	100	-	-
Rates and Taxes - - -	50	-	-	50	-	-
Lighting the Yard with Gas - - -	100	-	-	110	-	-
Rent of Water - - -	260	-	-	260	-	-
Allowances in lieu of Stationery - - -	27	-	-	27	-	-
Postage and Travelling Charges on the Public Service, Advertisements, Stamps, and other small Expenses - - -	131	-	-	131	-	-
TOTAL SALARIED ESTABLISHMENT {Salaries - - - £. 4,528 - - Rents, Rates, &c. - - 510 - - } £.	5,196	-	-	5,212	-	-
{Contingencies - - - 158 - -}						

WAGES:

	Number of Men.			
	1867/68.	1866/67.		
For the Wages of Artificers and Labourers on the Establishment	84	86	6,890	6,990
For the Wages of Victualling Yard Hoys - - -			1,462	1,570
For the Wages, Clothing, &c., of the Metropolitan Police Force employed in the Yard (under Act 23 & 24 Vict. c. 135), viz:				
1 Inspector - - -	£. 118	-		
3 Serjeants - - -	207	-		
15 Constables - - -	843	-		
19				
Commutation for Clothing, Fuel, and Contingent Expenses at 3s. per man per week - - -	148	-		
	£. 1,316	-		
Commutation for General Superintendence at 3s. 4d. per man per month - - -	38	-		
			1,354	1,290
TOTAL WAGES - - - £.	9,706	-		9,850
TOTAL ROYAL WILLIAM YARD - - - £.	14,902	-		15,062

No. 7.—VICTUALLING YARDS AND TRANSPORT ESTABLISHMENTS AT HOME AND ABROAD—continued.

VICTUALLING YARDS—continued.		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
HAULBOWLINE VICTUALLING YARD:			
SALARIED ESTABLISHMENT:		£. s. d.	£. s. d.
Naval and Victualling Storekeeper and Accountant	- - - - -	500 - -	500 - -
Two Clerks, from 90 l. to 300 l. per annum	- - - - -	450 - -	274 - -
Non-commissioned Officer of Marines employed as Clerk, &c., at 4 s. a day or 28 s. a week, in addition to his Pension	- - - - -	73 - -	73 - -
Temporary Employment of a Writer	- - - - -	86 - -	86 - -
Foreman of Coopers	- - - - -	150 - -	150 - -
Rent of Premises at Queenstown, occupied by Port Admiral	- - - - - £. 92	107 - -	107 - -
Rent of Land adjoining	- - - - - 10		
Rent of Water for ditto	- - - - - 5		
Allowance for House Rent to the Foreman of Coopers	- - - - -	26 - -	26 - -
Rates and Taxes	- - - - -	23 - -	23 - -
Lighting the Yard with Gas	- - - - -	5 - -	5 - -
Allowance to the Chaplain of Spike Island, for Professional Attendance	- - - - -	20 - -	20 - -
Allowance in lieu of Stationery	- - - - -	10 10 -	10 10 -
Postage and Travelling Charges on the Public Service, Stamps, Advertisements, and other small Expenses	- - - - -	29 10 -	29 10 -
TOTAL SALARIED ESTABLISHMENT	{ Salaries - - - £. 1,259 - - Rents, Rates, &c. - - 161 - - Contingencies - - 60 - - } £.	1,480 - -	1,304 - -
WAGES:			
		Number of Men.	
		1867/68.	1866-67.
For the Wages of Artificers, Labourers, Watchmen, &c., on the Establishment	- - - - -	13	13
		1,293 - -	1,270 - -
For the Wages of Victualling Yard Hoys	- - - - -	83 - -	82 - -
TOTAL WAGES	- - - £.	1,376 - -	1,352 - -
TOTAL HAULBOWLINE VICTUALLING YARD	- - - £.	2,856 - -	2,656 - -
GIBRALTAR:			
SALARIED ESTABLISHMENT	- - - - -	{ Provided for under Vote No. 6, Dock-yards and Naval Yards at Home and Abroad.	
WAGES:			
		Number of Men.	
		1867/68.	1866-67.
For the Wages of Artificers and Labourers:			
On the Establishment	- - - - -	7	7
		330 - -	330 - -
TOTAL GIBRALTAR VICTUALLING YARD	- - - £.	330 - -	330 - -

No. 7.—VICTUALLING YARDS AND TRANSPORT ESTABLISHMENTS AT HOME AND ABROAD—*continued.*VICTUALLING YARDS—*continued.*

MALTA:

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
Victualling Storekeeper and Accountant - - - - -	600 - -	600 - -
Clerks - - - {One Senior, from 315 <i>l.</i> to 450 <i>l.</i> a year - - - £. 450}	686 - -	673 - -
- - - {Two, from 90 <i>l.</i> to 300 <i>l.</i> a year - - - 236}		
Temporary Employment of Writers - - - - -	266 - -	266 - -
Master Miller and Baker - - - - -	175 - -	175 - -
Allowances for House Rent to Established Clerks - - - - - £. 60}	90 - -	90 - -
" " to a Writer (late temporary Clerk) - - - 30}		
Lighting the Yard with Gas - - - - -	100 - -	100 - -
Allowance in lieu of Stationery to the Victualling Storekeeper and Accountant - -	15 10 -	15 10 -
Advertisements and other small Expenses - - - - -	30 10 -	21 10 -
TOTAL SALARIED ESTABLISHMENT {Salaries - - - £. 1,727 - -}	£. 1,963 - -	1,941 - -
{Rents, Rates, &c. - - 190 - -}		
{Contingencies - - 46 - -}		

WAGES:

For the Wages of Artificers and Labourers, viz.:

	Number of Men.			
	1867/68.	1866/67.		
On the Establishment - - - - -	86	86	2,868 - -	2,868 - -
Hired Artificers and Labourers - - - - -	21	21	522 - -	522 - -
WAGES: TOTAL Established and Hired - - - - -	107	107	3,390 - -	3,390 - -

TOTAL MALTA VICTUALLING YARD - - - £. 5,353 - - 5,331 - -

HALIFAX:

Victualling Storekeeper and Accountant (paid as Naval Storekeeper and Accountant) - - - - -				
Clerk, from 90 <i>l.</i> to 300 <i>l.</i> a year - - - - -	90 - -	225 - -		
Temporary employment of Writers - - - - -	86 - -	91 - -		
Allowance to Clerk to meet the increased cost of living - - - - -	50 - -	50 - -		
Lighting the Yard with Gas - - - - -	35 - -	35 - -		
Allowance in lieu of Stationery to the Victualling Storekeeper and Accountant - -	6 - -	6 - -		
Fuel, Advertisements, and other small Expenses - - - - -	19 - -	19 - -		
TOTAL SALARIED ESTABLISHMENT {Salaries - - - £. 226 - -}	£. 286 - -	426 - -		
{Rents, Rates, &c. - - 35 - -}				
{Contingencies - - 25 - -}				

WAGES:

For the Wages of Artificers and Labourers, viz.:

	Number of Men.			
	1867/68.	1866/67.		
On the Establishment - - - - -	1	1	70 - -	70 - -
TOTAL WAGES - - - - -	£. 70 - -	70 - -		

TOTAL HALIFAX VICTUALLING YARD - - - £. 356 - - 496 - -

No. 7.—VICTUALLING YARDS AND TRANSPORT ESTABLISHMENTS AT HOME AND ABROAD—*continued.*VICTUALLING YARDS—*continued.*

BERMUDA:

SALARIED ESTABLISHMENT - - - - -		Number of Men.		Provided for under Vote No. 6, Dock- yards and Naval Yards at Home and Abroad.	
WAGES :					
For the Wages of Artificers and Labourers, viz. :		1867/68.	1866/67.		
On the Establishment - - - - -		14	14		
TOTAL BERMUDA VICTUALLING YARD - - - £.		950	950		

JAMAICA:

Paymaster in Charge of Victualling Stores at Port Royal	-	-	-	-	-	250	-	-	250	-	-		
Clerk, from 90 <i>l.</i> to 300 <i>l.</i> a year	-	-	-	-	-	240	-	-	225	-	-		
Temporary Employment of Writers	-	-	-	-	-	86	-	-	91	-	-		
Allowance to Clerk, to meet the increased cost of living	-	-	-	-	-	50	-	-	50	-	-		
Ditto - - for House Rent	-	-	-	-	-	40	-	-	30	-	-		
Allowance in lieu of Stationery	-	-	-	-	-	10	10	-	10	10	-		
Travelling Expenses, Advertisements, and other small Expenses	-	-	-	-	-	37	10	-	37	10	-		
TOTAL SALARIED ESTABLISHMENT						Salaries - - - £. 626 - - -		£.	714 - -		694 - -		
						Rents, Rates, &c. - - - 40 - - -							
						Contingencies - - - 48 - - -							
WAGES:													
For the Wages of Artificers and Labourers, viz. ;						Number of Men.							
						1867/68.	1866/67.						
On the Establishment - - - - -						7	7	373	-	-	373	-	-
Hired Artificers and Labourers - - - - -						2	2	187	-	-	187	-	-
TOTAL WAGES - - - -						9	9	560	-	-	560	-	-
TOTAL JAMAICA VICTUALLING YARD - - - £.								1,274	-	-	1,254	-	-

ASCENSION:

Allowance to the Captain - - - - -	100	- -	100	- -
" " Paymaster - - - - -	150	- -	150	- -
" " Chaplain - - - - -	40	- -	40	- -
" " Surgeon - - - - -	40	- -	40	- -
" " Chief Engineer - - - - -	55	- -	55	- -
Salary of the Gardener - - - - -	100	- -	112	- -
Ditto - - Under Gardener - - - - -		- -	55	- -
Ditto - - ditto - and Shepherd - - - - -	55	- -	55	- -
Allowance to Mistress of the Infant School - - - - -	16	- -	16	- -
Allowance in lieu of Stationery to the Captain (12 <i>l.</i>), Paymaster (40 <i>l.</i>), and Chapel Allowances (8 <i>l.</i>) - - - - -	60	- -	64	- -
TOTAL SALARIED ESTABLISHMENT { Salaries - - - £. 556 - - - Contingencies - - - 60 - - - } £.	616 - -		687 - -	

No. 7.—VICTUALLING YARDS AND TRANSPORT ESTABLISHMENTS AT HOME AND ABROAD—continued.

VICTUALLING YARDS—continued.

ASCENSION—continued.

VICTUALLING YARDS— <i>continued.</i>										REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.				
ASCENSION— <i>continued.</i>										£. s. d.			£. s. d.				
WAGES:										Number of Men.							
For the Wages of Artificers, Labourers, &c., viz.:										1867/68.		1866/67.					
On the Establishment - - - - -										3		3		330 - -		330 - -	
Liberated Africans - - - - -										—		—		1,100 - -		1,100 - -	
TOTAL WAGES - - -										3		3		1,430 - -		1,430 - -	
TOTAL ASCENSION VICTUALLING YARD - - -										£.				2,046 - -		2,117 - -	

SIERRA LEONE:

Allowance to the Assistant Commissary General for superintending the Receipt and Issue of Provisions and Stores	-	-	-	-	-	-	-	100	-	-	100	-	-							
Rent of Store for Clothing	-	-	-	-	-	-	-	36	-	-	36	-	-							
Small Expenses	-	-	-	-	-	-	-	6	-	-	6	-	-							
TOTAL SALARIED ESTABLISHMENT	{	Salaries	-	-	-	-	-	£. 100	-	-	£.	142	-	-						
															Rents, Rates, &c.	-	-	36	-	-
															Contingencies	-	-	6	-	-

WAGES:

For the Wages of Artificers and Labourers, viz. :		1867/68.	1866/67.		
On the Establishment	- - - - -	6	6	240 - -	230 - -
TOTAL WAGES - - - £.				240 - -	230 - -
TOTAL SIERRA LEONE VICTUALLING YARD - - - £.				382 - -	372 - -

CAPE OF GOOD HOPE:

Naval Officer in Charge (paid as Naval Officer at page 52)	-	-	-	-	-	—	—
Two Clerks, from 90 <i>l.</i> to 300 <i>l.</i> a year	-	-	-	-	-	370	345
Allowance to ditto, to meet increased cost of living	-	-	-	-	-	100	100
Allowance for House Rent to one of the Clerks	-	-	-	-	-	30	30
Travelling Expenses and Contingencies	-	-	-	-	-	50	19
TOTAL SALARIED ESTABLISHMENT	{	Salaries	-	-	£. 470	-	-
		Rents, Rates, &c.	-	-	30	-	-
		Contingencies	-	-	50	-	-
					£.	550	494

WAGES:

For the Wages of Artificers and Labourers, viz.:								1867/68.	1866/67.										
On the Establishment	-	-	-	-	-	-	-	3	3	193	-	-	193	-	-				
Hired Artificers and Labourers	-	-	-	-	-	-	-	2	2	117	-	-	117	-	-				
TOTAL WAGES								-	-	-	5	5	310	-	-	310	-	-	
TOTAL CAPE OF GOOD HOPE VICTUALLING YARD										-	-	-	£.	860	-	-	804	-	-

No. 7.—VICTUALLING YARDS AND TRANSPORT ESTABLISHMENTS AT HOME AND ABROAD—continued.

VICTUALLING YARDS—continued.		REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
SYDNEY:		£.	s.	d.	£.	s.	d.
Allowance to the Assistant Commissary General for superintending the Receipt and Issue of Provisions and Stores - - - - - £.		100	-	-	100	-	-
BARBADOES:							
Allowance to the Commissariat Officer for superintending the Receipt and Issue of Provisions and Stores - - - - - £.		100	-	-	100	-	-
AUCKLAND, NEW ZEALAND:							
Allowance to the Commissariat Officer for superintending the Receipt and Issue of Provisions and Stores - - - - - £.		50	-	-	50	-	-
TRINCOMALEE:							
SALARIED ESTABLISHMENT - - - - -		{ Provided for under Vote No. 6, Dock-yards and Naval Yards at Home and Abroad.					
WAGES:		Number of Men.					
For the Wages of Artificers and Labourers, viz.:		1867/68.	1866/67.				
On the Establishment - - - - -		2	2	120	-	-	120 - -
TOTAL TRINCOMALEE VICTUALLING YARD - - - £.		120	-	-	120	-	-
HONG KONG:							
SALARIED ESTABLISHMENT - - - - -		{ Provided for under Vote No. 6, Dock-yards and Naval Yards at Home and Abroad.					
WAGES:		Number of Men.					
For the Wages of Artificers and Labourers, viz.:		1867/68.	18 66/67.				
On the Establishment - - - - -		2	2	451	-	-	451 - -
Hired Artificers and Labourers - - - - -		22	22	489	-	-	489 - -
TOTAL WAGES - - -		24	24	940	-	-	940 - -
TOTAL HONG KONG VICTUALLING YARD - - - £.		940	-	-	940	-	-
ESQUIMALT (VANCOUVER):							
SALARIED ESTABLISHMENT:							
Paymaster in charge - - - - -		600	-	-	600	-	-
Clerk, from 90 L. to 300 L. per annum - - - - -		128	-	-	128	-	-
Allowance to Clerk, to meet increased cost of living - - - - -		175	-	-	100	-	-
Temporary Employment of Writers - - - - -		305	-	-	-	-	-
Additional Day's Pay to ditto, for Leap Year - - - - -		1	-	-	-	-	-
Allowance to Clerk, for House Rent - - - - -		80	-	-	80	-	-
Allowance in lieu of Stationery to the Paymaster in charge - - - - -		20	-	-	20	-	-
Postage, Travelling Charges on the Public Service, and other Expenses - - - - -		15	-	-	-	-	-
TOTAL SALARIED ESTABLISHMENT { Salaries - - - £. 1,209 - -		Rents, Rates &c. - - - 80 - -		{ Contingencies - - - 35 - -		£. 1,324 - -	
						928 - -	

No. 7.—VICTUALLING YARDS AND TRANSPORT ESTABLISHMENTS AT HOME AND ABROAD—*continued.*VICTUALLING YARDS—*continued.*ESQUIMALT (VANCOUVER)—*continued.*

WAGES:

For the Wages of Artificers and Labourers, viz.:

	REQUIRED for the Service of the Year 1867/68.		LAST VOTE for the Financial Year 1866/67.	
	£. s. d.		£. s. d.	
	1867/68.	1866/67.		
On the Establishment - - - - -	2	3	365 - -	565 - -
TOTAL WAGES - - - £.	365	- -	565	- -
TOTAL ESQUIMALT VICTUALLING YARD - - - £.	1,689	- -	1,493	- -
TOTAL OF YARDS AT HOME AND ABROAD - - -	84,523	- -	83,846	- -
Survey Valuation of Stock in the several VICTUALLING YARDS - - -	100	- -	100	- -
	£. 84,623	- -	83,946	- -

TRANSPORT ESTABLISHMENT.

DEPTFORD:

SALARIED ESTABLISHMENT:

Resident Transport Officer * - - - - -	400	- -	400	- -
Senior Clerk, from 315 l. to 450 l. per annum - - - - -	366	- -	350	- -
Temporary Employment of Clerks - - - - -	138	- -	94	- -
Leading Man of Storehouses - - - - -	{ Provided for un- der Wages - }		85	- -
Lodging Allowances to four Carpenters, R. N., employed upon Transport Duties, in addition to their full pay - - - - -	183	- -	183	- -
Allowance in lieu of House to Senior Clerk - - - - -	50	- -	50	- -
Rates and Taxes - - - - -	33	- -	33	- -
Stationery Allowance to Resident Transport Officer - - - - -	5	- -	5	- -
Travelling Charges, Postage, and other small Expenses - - - - -	130	- -	130	- -
TOTAL SALARIED ESTABLISHMENT	Salaries - - - £. 904	- -	£. 1,305	- -
	Rents, Rates, &c. - - -	266 - -		
	Contingencies - - -	135 - -		

WAGES:

For the Wages of Labourers - - - - -	467	- -	348	- -
TOTAL DEPTFORD TRANSPORT ESTABLISHMENT - - - £.	1,772	- -	1,678	- -
TOTAL - - - £.	86,395	- -	85,624	- -

* In addition to Half-pay.

No. 7.—VICTUALLING YARDS AND TRANSPORT ESTABLISHMENTS AT HOME AND ABROAD—continued.

A B S T R A C T. - - - - -

VICTUALLING YARDS.	SALARIES.		RENTS, RATES, TAXES, GAS AND WATER.		CONTINGENCIES.	
	1867-68.	1866-67.	1867-68.	1866-67.	1867-68.	1866-67.
AT HOME:	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Royal Victoria Yard - - -	9,056 - -	8,854 - -	869 - -	869 - -	283 - -	278 - -
Royal Clarence Yard - - -	4,511 - -	4,585 - -	276 - -	256 - -	146 - -	146 - -
Royal William Yard - - -	4,528 - -	4,534 - -	510 - -	520 - -	158 - -	158 - -
Haulbowline - - - - -	1,259 - -	1,083 - -	161 - -	161 - -	60 - -	60 - -
TOTAL of YARDS AT HOME - £.	19,354 - -	19,056 - -	1,816 - -	1,806 - -	647 - -	642 - -
ABROAD:						
Gibraltar - - - - -	- - -	- - -	- - -	- - -	- - -	- - -
Malta - - - - -	1,727 - -	1,714 - -	190 - -	190 - -	46 - -	37 - -
Halifax - - - - -	226 - -	366 - -	35 - -	35 - -	25 - -	25 - -
Bermuda - - - - -	- - -	- - -	- - -	- - -	- - -	- - -
Jamaica - - - - -	626 - -	616 - -	40 - -	30 - -	48 - -	48 - -
Ascension - - - - -	556 - -	623 - -	- - -	- - -	60 - -	64 - -
Sierra Leone - - - - -	100 - -	100 - -	36 - -	36 - -	6 - -	6 - -
Cape of Good Hope - - -	470 - -	445 - -	30 - -	30 - -	50 - -	19 - -
Sydney - - - - -	100 - -	100 - -	- - -	- - -	- - -	- - -
Barbadoes - - - - -	100 - -	100 - -	- - -	- - -	- - -	- - -
Auckland - - - - -	50 - -	50 - -	- - -	- - -	- - -	- - -
Trincomalee - - - - -	- - -	- - -	- - -	- - -	- - -	- - -
Hong Kong - - - - -	- - -	- - -	- - -	- - -	- - -	- - -
Esquimalt - - - - -	1,209 - -	828 - -	80 - -	80 - -	35 - -	20 - -
TOTAL of YARDS ABROAD - £.	5,164 - -	4,942 - -	411 - -	401 - -	270 - -	219 - -
TOTAL of YARDS at HOME and ABROAD } £.	24,518 - -	23,998 - -	2,227 - -	2,207 - -	917 - -	861 - -
TRANSPORT ESTABLISHMENT:						
Deptford - - - - -	904 - -	929 - -	266 - -	266 - -	135 - -	135 - -

Mem.—Statement of the numbers and description of workmen authorised as the establishments at the several Victualling Yards at Home, see Appendix, No. 17, p. 161.

No. 7.—VICTUALLING YARDS AND TRANSPORT ESTABLISHMENTS AT HOME AND ABROAD—*continued.*

A B S T R A C T.

WAGES TO ARTIFICERS.			WAGES, VICTUALLING YARD HOYS.			WAGES, POLICE FORCE.			REQUIRED for the Service of the Year 1867-68.	LAST VOTE for the Financial Year 1866-67.
1867-68.	1866-67.		1867-68.	1866-67.		1867-68.	1866-67.			
£. s. d.	£. s. d.		£. s. d.	£. s. d.		£. s. d.	£. s. d.		£. s. d.	£. s. d.
22,960 - -	22,940 - -		2,381 - -	2,280 - -		1,806 - -	1,714 - -		37,355 - -	36,935 - -
7,003 - -	6,960 - -		1,500 - -	1,432 - -		1,424 - -	1,357 - -		14,860 - -	14,736 - -
6,890 - -	6,990 - -		1,462 - -	1,570 - -		1,354 - -	1,290 - -		14,902 - -	15,062 - -
1,293 - -	1,270 - -		83 - -	82 - -		- - -	- - -		2,856 - -	2,656 - -
38,146 - -	38,160 - -		5,426 - -	5,364 - -		4,584 - -	4,361 - -		69,973 - -	69,389 - -
330 - -	330 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	330 - -	330 - -
3,390 - -	3,390 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	5,353 - -	5,331 - -
70 - -	70 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	356 - -	496 - -
950 - -	950 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	950 - -	950 - -
560 - -	560 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	1,274 - -	1,254 - -
1,430 - -	1,430 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	2,046 - -	2,117 - -
240 - -	230 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	382 - -	372 - -
310 - -	310 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	860 - -	804 - -
- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	100 - -	100 - -
- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	100 - -	100 - -
- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	50 - -	50 - -
120 - -	120 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	120 - -	120 - -
940 - -	940 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	940 - -	40 - -
365 - -	565 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	1,689 - -	1,493 - -
8,705 - -	8,895 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	14,550 - -	14,457 - -
46,851 - -	47,055 - -	5,426 - -	5,364 - -	4,584 - -	4,361 - -	84,523 - -	83,846 - -			
For Survey Valuation of Stock in the Victualling Yards									100 - -	100 - -
									£. 84,623 - -	83,946 - -
467 - -	348 - -	- - -	- - -	- - -	- - -	1,772 - -	1,678 - -			
TOTAL - - - £.									86,395 - -	85,624 - -

— No. 8. —

MEDICAL ESTABLISHMENTS AT HOME AND ABROAD.

MEDICAL ESTABLISHMENTS AT HOME.		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
HASLAR HOSPITAL.		£. s. d.	£. s. d.
SALARIED ESTABLISHMENT:			
Captain Superintendent (paid on the Royal Clarence Victualling Establishment) -		400 - -	400 - -
Two Lieutenants, at 200 l. each* -		1,825 - -	1,642 10 -
Two Inspectors General of Hospitals -		1,223 - -	46 - -†
Two Deputy Inspectors General of Hospitals -		500 - -	1,131 10 -
Agent and Steward (Increase of Salary of £. 50 not to be continued to successor) -		493 - -	41 - -†
Staff Surgeon and Medical Storekeeper -		350 - -	500 - -
Chaplain † -		903 - -	401 10 -
Four Assistant Surgeons -		1,226 - -	23 - -†
Five Clerks, from 90 l. to 300 l. per annum -		513 - -	812 2 6
Allowances to Medical Officers for Servants, Fuel and Lights -		13 - -	22 - -†
Additional Day's Pay for Leap Year -		164 - -	350 - -
Lodging Money to Clerks -		62 - -	812 2 6
Toll for Bridge from Gosport to Haslar (per Act 4 Will. 4, c. 4, s. 49) -		200 - -	22 - -†
Rates and Taxes -		400 - -	400 - -
Lighting the Hospital with Gas -		30 - -	400 - -
Allowance to Roman Catholic Priest -		60 - -	30 - -
Scripture Reader -		20 - -	60 - -
Allowance to the Minister of the Church of Scotland for attending to the Spiritual Wants of the Presbyterians in the Hospital -		33 - -	—
Allowances in lieu of Stationery -		160 - -	33 2 -
Carting and Pumping, and Gravelling the Walks by Contract -		150 - -	160 - -
Funerals, and Compensation for Burial Fees -		152 - -	150 - -
Postage, Advertisements, Conducting Lunatics, Chapel Allowances, and other small Expenses -		152 - -	152 9 6
TOTAL SALARIED ESTABLISHMENT -	{ Salaries - - £. 7,446 - - Rents, Rates, &c. - 826 - - Contingencies - 605 - - }	£. 8,877 - -	{ 7,840 - - 382 - -†
WAGES:			
For the Wages of Matrons, Porters, Barbers, Cooks, Labourers, Nurses on the Establishment, and for occasional Employment, and Clothing for Nurses -		8,474 - -	8,474 - -
For the Wages, Clothing, &c. of the Metropolitan Police Force employed in the Hospital, under Act 23 & 24 Vict. c. 135, viz.:—			
	£. s. d.		
1 Inspector -	118 - -		
3 Sergeants -	207 - -		
11 Constables -	614 - -		
15			
Commutation for Clothing, Fuel, and contingent Expenses, at 3 s. per man per week -	117 - -		
	£. 1,056 - -		
Do., for General Superintendence at 3 s. 4 d. per man per month -	30 - -		
	1,086 - -		
TOTAL Wages -	£. 9,560 - -		
TOTAL HASLAR HOSPITAL -	£. 18,437 - -		
			{ 17,366 - - 382 - -†

* In addition to Half-pay.

† Voted on the Supplementary Estimate, dated 17th July 1866.

‡ In addition to part of Half-pay.

No. 8.—MEDICAL ESTABLISHMENTS AT HOME AND ABROAD—continued.

						REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
PLYMOUTH HOSPITAL:							
SALARIED ESTABLISHMENT:						£. s. d.	£. s. d.
Captain Superintendent (paid on the Royal William Victualling Establishment)	-	-	-	-	-	—	—
Two Lieutenants, at 200 l. each*	-	-	-	-	-	400	—
Inspector General of Hospitals	-	-	-	-	-	913	{ 821 5 -
Deputy Inspector General of Hospitals	-	-	-	-	-	584	{ 23 - -†
Agent and Steward *	-	-	-	-	-	400	{ 511 - -
Staff Surgeon and Medical Storekeeper	-	-	-	-	-	493	{ 18 - -†
Chaplain†	-	-	-	-	-	350	{ 401 10 -
Three Assistant Surgeons	-	-	-	-	-	657	{ 9 - -†
Three Clerks, from 90 l. to 300 l. per annum	-	-	-	-	-	560	{ 602 5 -
Temporary employment of Clerks	-	-	-	-	-	15	{ 9 - -†
Allowances to Medical Officers for Servants, Fuel, and Lights	-	-	-	-	-	322	540 - -
Additional Day's Pay for Leap Year	-	-	-	-	-	7	161 - -†
House Allowance to Clerk to Superintendent	-	-	-	-	-	50	—
Rates and Taxes	-	-	-	-	-	187	50 - -
Lighting the Hospital with Gas	-	-	-	-	-	240	187 - -
Allowance to Roman Catholic Priest	-	-	-	-	-	30	230 - -
Allowances in lieu of Stationery	-	-	-	-	-	29	30 - -
Funerals, and Compensation for Burial Fees	-	-	-	-	-	15	29 - -
Postage, Advertisements, Conducting Lunatics, Chapel Allowances, and other small Expenses	-	-	-	-	-	130	15 - -
TOTAL SALARIED ESTABLISHMENT						5,382	130 - -
{ Salaries - - £. 4,701 - - Rents, Rates, &c. - 477 - - Contingencies - 204 - -						£.	{ 4,617 - - 220 - -†
WAGES:							
For the Wages of Matrons, Porters, Barbers, Cooks, Labourers, Nurses on the Establishment, and for occasional Employment, and Clothing for Nurses						4,923	4,911 - -
For the Wages, Clothing, &c. of the Metropolitan Police Force employed in the Hospital, under Act 23 & 24 Vict. c. 135, viz. :—							
						£. s. d.	
2 Sergeants						139	
11 Constables						625	
13							
Commutation for Clothing, Fuel, and Contingent Expenses, at 3 s. per man per week						101	
						£. 865	
Do., for General Superintendence, at 3 s 4 d. per man per month						26	
						891	{ Provided for under Vote, No. 6, p. 55.
TOTAL Wages						5,814	825 - -
TOTAL PLYMOUTH HOSPITAL						11,196	{ 10,383 - - 220 - -†

* In addition to Half-pay.

† Voted on the Supplementary Estimate, dated 17th July 1866.

‡ In addition to part of Half-pay,

No. 8.—MEDICAL ESTABLISHMENTS AT HOME AND ABROAD—*continued.*

		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
HAULBOWLINE HOSPITAL:			
SALARIED ESTABLISHMENT:		£. s. d.	£. s. d.
Staff Surgeon - - - - -		493 - -	{ 401 10 -
Assistant Surgeon - - - - -		228 - -	{ 9 - -*
Clerk, from 90 l. to 300 l. per annum - - - - -		- - -	{ 209 17 6
Allowances to Medical Officers for Servants, Fuel, and Lights - - - - -		92 - -	{ 5 - -*
Additional Day's Pay for Leap Year - - - - -		2 - -	{ 255 - -
Allowance to a Roman Catholic Priest for services to Patients in the Hospital, and for performance of Religious Duties to Officers, Seamen, and Marines of H.M. ships - - - - -		30 - -	{ 26 - -*
Postage, Advertisements, Travelling Charges, and other small Expenses - - - - -		26 - -	{ 30 - -
			{ 26 12 6
TOTAL SALARIED ESTABLISHMENT	{ Salaries - - - £. 815 - - Contingencies - - - 56 - - }	871 - -	{ 923 - - 40 - -* }
WAGES			
For the Wages of Matrons, Porters, Barbers, Cooks, Labourers, Nurses on the Establishment, and for occasional Employment, and Clothing for Nurses - - - - -		713 - -	652 - -
TOTAL HAULBOWLINE HOSPITAL - - - - £.		1,584 - -	{ 1,575 - - 40 - -* }
YARMOUTH HOSPITAL:			
(Lunatic Asylum.)			
SALARIED ESTABLISHMENT:			
Deputy Inspector General of Hospitals - - - - -		584 - -	{ 511 - -
Assisting Surgeon - - - - -		402 - -	{ 9 - -*
Agent and Steward - - - - -		300 - -	{ 328 10 -
Allowances to Medical Officers for Servants, Fuel, and Lights - - - - -		120 - -	{ 9 - -*
Additional Day's Pay for Leap Year - - - - -		3 - -	{ 300 - -
Ground Rent of Hospital - - - - -		15 - -	{ 52 - -*
Rent of Cemetery - - - - -		10 - -	{ 14 14 -
Rates and Taxes - - - - -		4 - -	{ 10 - -
Lighting the Hospital with Gas - - - - -		150 - -	{ 4 - -
Water supplied for the Hospital - - - - -		100 - -	{ 150 - -
Allowance to Vicar of North Yarmouth, for Spiritual Attendance upon the Inmates of the Asylum - - - - -		100 - -	{ 100 - -
Allowance to a Roman Catholic Priest, for Attendance upon the Inmates of the Asylum - - - - -		15 - -	{ 15 - -
Funerals, and Compensation for Burial Fees - - - - -		82 - -	{ 82 - -
Conducting Lunatics, Postage, Advertisements, Articles of Amusement for Lunatics, Regulating Clock, and other small Expenses - - - - -		90 - -	{ 90 16 -
TOTAL SALARIED ESTABLISHMENT	{ Salaries - - - £. 1,409 - - Rent, Rates, &c. - - - 279 - - Contingencies - - - 287 - - }	1,975 - -	{ 1,706 - - 70 - -* }
WAGES:			
For the Wages of Matrons, Porters, Barbers, Cooks, Labourers, Nurses on the Establishment, and for occasional employment, and Clothing for Nurses - - - - -		1,630 - -	1,585 - -
TOTAL YARMOUTH HOSPITAL - - - - £.		3,605 - -	{ 3,291 - - 70 - -* }

* Voted on the Supplementary Estimate, dated 17th July 1866.

No. 8.—MEDICAL ESTABLISHMENTS AT HOME AND ABROAD—continued.

						REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
MEDICAL ESTABLISHMENTS ABROAD:							
MALTA:							
SALARIED ESTABLISHMENT:						£. s. d.	£. s. d.
Deputy Inspector General of Hospitals	-	-	-	-	-	584 - -	{ 511 - - 18 - -*
Surgeon and Medical Storekeeper	-	-	-	-	-	493 - -	{ 401 10 - 9 - -*
Assistant Surgeon	-	-	-	-	-	273 - -	{ 209 17 6 5 - -*
Clerk, from 90 l. to 300 l. per annum	-	-	-	-	-	270 - -	275 - -
Temporary employment of a Writer	-	-	-	-	-	78 - -	-
Allowances in lieu of Hospital Rations, three at 2 s. 6 d. a day each	-	-	-	-	-	-	136 17 6
Allowances to Medical Officers for Provisions, Servants, Fuel and Lights	-	-	-	-	-	332 - -	146 - -*
Additional Day's Pay for Leap Year	-	-	-	-	-	4 - -	-
Lighting the Hospital with Gas	-	-	-	-	-	100 -	100 - -
Allowance to Roman Catholic Priest	-	-	-	-	-	-	60 - -
Allowances in lieu of Stationery:							
To the Deputy Inspector General of Hospitals	-	-	-	-	-	£. 5 5 -	
„ Surgeon and Medical Storekeeper	-	-	-	-	-	2 2 -	
Postage, Boat Hire, Funerals, and other small Expenses	-	-	-	-	-	7 7 -	7 7 -
						60 13 -	51 8 -
TOTAL SALARIED ESTABLISHMENT	-	{ Salaries - £. 2,034 - - Rents, Rates, &c. 100 - - Contingencies 68 - - }				£. 2,202 - -	{ 1,753 - - 178 - -*
WAGES:							
For the Wages of Labourers, Nurses, &c.	-	-	-	-	-	£. 1,655 - -	1,733 - -
TOTAL MALTA MEDICAL ESTABLISHMENT	-	-	-	-	-	£. 3,857 - -	{ 3,486 - - 178 - -*
BERMUDA:							
SALARIED ESTABLISHMENT:							
Deputy Inspector General of Hospitals	-	-	-	-	-	602 - -	{ 511 - - 23 - -*
Two Assistant Surgeons	-	-	-	-	-	387 - -	447 2 6
Clerk, from 90 l. to 300 l. per annum	-	-	-	-	-	300 - -	300 - -
Allowances to ditto, to meet increased cost of living	-	-	-	-	-	50 - -	50 - -
Allowance in lieu of Hospital Provisions, three at 3 s. 6 d. a day each	-	-	-	-	-	-	191 12 6
Allowances to Medical Officers for Provisions, Servants, Fuel and Lights	-	-	-	-	-	328 - -	102 - -*
Additional Day's Pay for Leap Year	-	-	-	-	-	3 - -	-
Allowances in lieu of Stationery:							
To the Deputy Inspector General of Hospitals	-	-	-	-	-	£. 5 5 -	
„ Assistant Surgeons, at 1 l. 1 s. each	-	-	-	-	-	2 2 -	
Travelling Charges, Funerals, and other small Expenses	-	-	-	-	-	7 7 -	7 7 -
						6 13 -	6 18 -
TOTAL SALARIED ESTABLISHMENT	-	{ Salaries - £. 1,670 - - Contingencies 14 - - }				£. 1,684 - -	{ 1,514 - - 125 - -*
WAGES:							
For the Wages of Labourers, Nurses, &c.	-	-	-	-	-	965 - -	810 - -
TOTAL BERMUDA MEDICAL ESTABLISHMENT	-	-	-	-	-	£. 2,649 - -	{ 2,324 - - 125 - -*

* Voted on the Supplementary Estimate, dated 17th July 1866.

No. 8.—MEDICAL ESTABLISHMENTS AT HOME AND ABROAD—continued.

						REQUIRED for the Service of the Year 1867/—68.	LAST VOTE for the Financial Year 1866/67.
JAMAICA:						£. s. d.	£. s. d.
SALARIED ESTABLISHMENT.							
Deputy Inspector General of Hospitals	-	-	-	-	-	584 - -	{ 547 10 - 23 - -*
Surgeon and Medical Storekeeper	-	-	-	-	-	402 - -	{ 328 10 - 18 - -*
Two Assistant Surgeons	-	-	-	-	-	456 - -	{ 419 15 - 9 - -*
Clerk, from 90 l. to 300 l. per annum	-	-	-	-	-	104 - -	94 - -
Allowance to ditto, to meet increased cost of living	-	-	-	-	-	50 - -	50 - -
Allowances in lieu of Hospital Provisions, four, at 3 s. 6 d. a day each	-	-	-	-	-	-	255 10 -
Allowances to Medical Officers for Provisions, Servants, Fuel, and Lights	-	-	-	-	-	440 - -	138 - -*
Additional Day's Pay for Leap Year	-	-	-	-	-	4 - -	-
Allowances in lieu of Houses:					£. s. d.		
To the Surgeon and Medical Storekeeper	-	-	-	-	57 2 10	-	97 2 10
To the Clerk	-	-	-	-	40 - -	-	-
Allowances in lieu of Stationery:							
To the Deputy Inspector General of Hospitals	-	-	-	-	5 5 -	7 7 -	7 7 -
To the Surgeon and Medical Storekeeper	-	-	-	-	2 2 -	-	-
Travelling Charges, Boat Hire, Advertisements, Funerals, and other small Expenses	-	-	-	-	-	20 13 -	41 5 2
TOTAL SALARIED ESTABLISHMENT	-	{ Salaries - - £. 2,040 - -	-	-	-	2,068 - -	{ 1,841 - - 188 - -*
	-	{ Contingencies - - 28 - -	-	-	-	-	-
WAGES:							
For the Wages of Labourers, Nurses, &c.	-	-	-	-	-	840 - -	836 - -
TOTAL JAMAICA MEDICAL ESTABLISHMENT	-	-	-	-	£.	2,908 - -	{ 2,677 - - 188 - -*
ASCENSION:							
SALARIED ESTABLISHMENT	-	-	-	-	-	{ Provided for under Vote No 7, Victualling Yards, &c.	
WAGES:							
For the Wages of Labourers, Nurses, &c.	-	-	-	-	-	402 - -	402 - -
TOTAL ASCENSION MEDICAL ESTABLISHMENT	-	-	-	-	£.	402 - -	402 - -
CAPE OF GOOD HOPE:							
SALARIED ESTABLISHMENT:							
Staff Surgeon and Medical Storekeeper	-	-	-	-	-	493 - -	{ 401 10 - 9 - -*
Clerk, from 90 l. to 300 l. per annum	-	-	-	-	-	300 - -	300 - -
Allowance to ditto, to meet increased cost of living	-	-	-	-	-	50 - -	50 - -
Temporary employment of Clerks	-	-	-	-	-	15 - -	-
Allowance to the Staff Surgeon and Medical Storekeeper, in lieu of Hospital Provisions, at 2 s. 6 d. a day	-	-	-	-	-	-	45 12 6
Allowance to Medical Officer for Provisions, Servants, Fuel and Lights	-	-	-	-	-	112 - -	50 - -*
Additional Day's Pay for Leap Year	-	-	-	-	-	1 - -	-
House Allowance to Clerk	-	-	-	-	-	40 - -	-
Allowance in lieu of Stationery to the Staff Surgeon	-	-	-	-	-	6 - -	6 - -
Washing Hospital Linen, Funerals, and other small Expenses	-	-	-	-	-	58 - -	57 17 6
TOTAL SALARIED ESTABLISHMENT	-	{ Salaries - - £ 971 - -	-	-	-	1,075 - -	{ 861 - - 59 - -*
	-	{ Rents, Rates, &c. 40 - -	-	-	-	-	-
	-	{ Contingencies - 64 - -	-	-	-	-	-
WAGES:							
For the Wages of Labourers, Nurses, &c.	-	-	-	-	£.	590 - -	581 - -
TOTAL CAPE OF GOOD HOPE MEDICAL ESTABLISHMENT	-	-	-	-	£.	1,665 - -	{ 1,442 - - 59 - -*

* Voted on the Supplementary Estimate, dated 17th July 1866.

No. 8.—MEDICAL ESTABLISHMENTS AT HOME AND ABROAD—*continued.*

HONG KONG:		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
("Melville" Hospital Ship.)			
SALARIED ESTABLISHMENT:		£. s. d.	£. s. d.
Deputy Inspector General of Hospitals	- - - - -	584 - -	{ 511 - - 9 - -*
Surgeon	- - - - -	3.9 - -	{ 273 15 - - 11 - -*
Four Assistant Surgeons	- - - - -	776 - -	{ 784 15 - - 9 - -*
Clerk, from 90 l. to 300 l. per annum	- - - - -	108 - -	98 - -
Allowance to ditto, to meet increased cost of living	- - - - -	100 - -	100 - -
Allowance in lieu of Hospital Provisions to the Chaplain of the Ship, at 4 s. a day	- - - - -	73 - -	511 - -
Allowances to Medical Officers for Provisions, Servants, Fuel, and Lights	- - - - -	656 - -	164 - -*
Additional Day's Pay for Leap Year	- - - - -	5 - -	- -
Allowances in lieu of Stationery:	£. s. d.		
To the Deputy Inspector General of Hospitals	- - - - - 5 5 -		
" Surgeon	- - - - - 2 2 -	15 7 -	15 7 -
" Chaplain	- - - - - 8 - -		
Funeral Expenses, Boat Hire, and other small Expenses	- - - - -	89 13 -	89 3 -
TOTAL SALARIED ESTABLISHMENT	{ Salaries - - - £. 2,621 - - Contingencies - - 105 - - } £.	2,726 - -	{ 2,383 - - 193 - -*
WAGES:			
For the Wages of Labourers, Nurses, &c.	- - - - -	774 - -	738 - -
TOTAL HONG KONG MEDICAL ESTABLISHMENT - - - £.		3,500 - -	{ 3,121 - - 193 - -*
MARINE INFIRMARIES.			
WOOLWICH:			
SALARIED ESTABLISHMENT:			
Deputy Inspector General of Hospitals	- - - - -	639 - -	{ 547 10 - - 23 - -*
Two Assistant Surgeons	- - - - -	456 - -	{ 419 15 - - 9 - -*
Purveyor	- - - - -	100 - -	100 - -
Additional Salary to the Chaplain of Woolwich Yard, for Services at the Infirmary	- - - - -	100 - -	100 - -
Allowances to Medical Officers, for Servants, Fuel, and Lights	- - - - -	145 - -	71 - -*
Additional Day's Pay for Leap Year	- - - - -	3 - -	- -
Lodging Money to Deputy Inspector General of Hospitals	- - - - -	70 - -	70 - -
Rates and Taxes	- - - - -	6 - -	6 - -
Lighting the Infirmary with Gas	- - - - -	280 - -	250 - -
Water supplied for the Infirmary	- - - - -	50 - -	50 - -
Shaving, keeping Linen in Repair, Washing, Funerals, and other small Expenses	- - - - -	51 - -	50 15 -
TOTAL SALARIED ESTABLISHMENT	{ Salaries - - - £. 1,443 - - Rents, Rates, &c. - - 406 - - Contingencies - - 51 - - } £.	1,900 - -	{ 1,594 - - 103 - -*
WAGES:			
For the Wages of Matrons, Nurses, and other inferior Servants, and for Clothing for Nurses	- - - - -	1,903 - -	2,003 - -
For the Wages, Clothing, &c. of the Metropolitan Police Force employed in the Infirmary, under Act 23 & 24 Vict. c. 135, viz.:-	£. s. d.		
1 Sergeant	- - - - - 67 - -		
7 Constables	- - - - - 378 - -		
8			
Commutation for Clothing, Fuel, and contingent Expenses, at 3 s. per man per week	- - - - - 62 - -		
Ditto for General Superintendence, at 3 s. 4 d. per man per month	- - - - - 16 - -		
TOTAL WAGES - - - £.		2,426 - -	{ 4,086 - - 103 - -*
TOTAL WOOLWICH MARINE INFIRMARY - - - £.		4,326 - -	{ 4,086 - - 103 - -*

* Voted on the Supplementary Estimate, dated 17th July 1866.

No. 8.—MEDICAL ESTABLISHMENTS AT HOME AND ABROAD—*continued.*

						REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
CHATHAM:						£. s. d.	£. s. d.
SALARIED ESTABLISHMENT:							
Deputy Inspector General of Hospitals	-	-	-	-	-	584	{ 511 - -
Two Assistant Surgeons	-	-	-	-	-	520	{ 9 - -*
Purveyor	-	-	-	-	-	100	{ 419 15 -
Chaplain	-	-	-	-	-	100	{ 9 - -*
Clerk to Hospital Depot for Stores	-	-	-	-	-	50	100 - -
Allowances to Medical Officers for Servants, Fuel and Lights	-	-	-	-	-	145	100 - -
Additional Day's Pay for Leap Year	-	-	-	-	-	3	45 - -
Lodging Money to Chaplain	-	-	-	-	-	60	71 - -*
Rates and Taxes	-	-	-	-	-	61	60 - -
Lighting the Infirmary with Gas	-	-	-	-	-	100	61 - -
Shaving, Funerals, and other small Expenses	-	-	-	-	-	80	80 - -
TOTAL SALARIED ESTABLISHMENT						1,803	{ 80 5 -
WAGES:							
For the Wages of Matrons, Nurses, and other inferior Servants, and Clothing for Nurses	-	-	-	-	-	1,826	{ 1,457 - -
For the Wages, Clothing, &c. of the Metropolitan Police Force employed in the Infirmary, under the Act 23 & 24 Vict. c. 135, viz:—	-	-	-	-	-		{ 89 - -*
1 Sergeant	-	-	-	-	-		
3 Constables	-	-	-	-	-		
4	-	-	-	-	-		
Commutation for Clothing, Fuel, and Contingent Expenses, at 3s. per man per week	-	-	-	-	-		
	-	-	-	-	-		
Ditto, for General Superintendence, at 3s. 4d. per man per month	-	-	-	-	-		
	-	-	-	-	-		
TOTAL WAGES	-	-	-	-	-	2,103	{ Provided for under Vote No. 6, page 55.
	-	-	-	-	-		
TOTAL CHATHAM MARINE INFIRMARY	-	-	-	-	-	3,906	{ 266 - -
	-	-	-	-	-		
PORTSMOUTH (FORTON):							
SALARIED ESTABLISHMENT:							
Staff Surgeon	-	-	-	-	-	493	{ 401 10 -
Two Assistant Surgeons	-	-	-	-	-	484	{ 9 - -*
Allowances to Medical Officers for Servants, Fuel, and Lights	-	-	-	-	-	131	{ 447 2 6
Additional Day's Pay for Leap Year	-	-	-	-	-	3	{ 9 - -*
House Rent to Staff Surgeon	-	-	-	-	-	70	{ 71 - -*
Shaving, Washing, Allowance for Repairing Bedding, Funerals, and other small Expenses	-	-	-	-	-	10	70 - -
TOTAL SALARIED ESTABLISHMENT	-	-	-	-	-	1,191	{ 10 7 6
WAGES:							
For the Wages of Matrons, Nurses, and other inferior Servants, and for Clothing for Nurses	-	-	-	-	-	47	{ 929 - -
	-	-	-	-	-		{ 89 - -*
TOTAL PORTSMOUTH MARINE INFIRMARY (FORTON)	-	-	-	-	-	1,238	{ 976 - -
	-	-	-	-	-		{ 89 - -*

* Voted on the Supplementary Estimate, dated 17th July 1866.

No. 8.—MEDICAL ESTABLISHMENTS AT HOME AND ABROAD—continued.

		REQUIRED for the Service of the Year 1867/68.	LAST VOICE for the Financial Year 1866/67.
PORTSMOUTH (MARINE ARTILLERY INFIRMARY, FORT CUMBERLAND):		£. s. d.	£. s. d.
SALARIED ESTABLISHMENT:			
Staff Surgeon - - - - -		530 - -	{ 456 5 -
Two Assistant Surgeons - - - - -		456 - -	{ 9 - *
Allowances to Medical Officers for Servants, Fuel, and Lights - - - - -		131 - -	{ 209 17 6
Additional Day's Pay for Leap Year - - - - -		3 - -	{ 5 - *
House Rent to Staff Surgeon - - - - -		70 - -	{ 72 - *
Rent of House at Southsea for Dispensary and Quarters for Assistant Surgeon - - - - -		- - -	70 - -
Rates and Taxes - - - - -		10 - -	35 - -
Shaving, Washing, Allowance for Repairing Bedding, Funerals, and other small Expenses - - - - -		78 - -	10 - -
			78 17 6
TOTAL SALARIED ESTABLISHMENT	{ Salaries - - £. 1,120 - - Rents, Rates, &c. 80 - - Contingencies - 78 - - }	£. 1,278 - -	{ 860 - - 86 - - *
WAGES:			
For the Wages of Matrons, Nurses, and other inferior Servants, and for Clothing for Nurses - - - - -		251 - -	251 - -
TOTAL PORTSMOUTH (MARINE ARTILLERY INFIRMARY, FORT CUMBERLAND) - £.		1,529 - -	{ 1,111 - - 86 - - *

PLYMOUTH:			
SALARIED ESTABLISHMENT:			
Staff Surgeon - - - - -		492 - -	{ 401 10 -
Two Assistant Surgeons - - - - -		500 - -	{ 18 - *
Allowances to Medical Officers for Servants, Fuel, and Lights - - - - -		131 - -	{ 419 15 -
Additional Day's Pay for Leap Year - - - - -		3 - -	{ 9 - *
Rates and Taxes - - - - -		19 - -	{ 72 - *
Water supplied for the Infirmary - - - - -		30 - -	19 - -
Washing, Shaving, Postage, Funerals, and other small Expenses - - - - -		31 - -	30 - -
			30 15 -
TOTAL SALARIED ESTABLISHMENT	{ Salaries - - £. 1,126 - - Rents, Rates, &c. 49 - - Contingencies - 31 - - }	£. 1,206 - -	{ 901 - - 99 - - *
WAGES:			
For the Wages of Matrons, Nurses, and other inferior Servants, and for Clothing for Nurses - - - - -		400 - -	400 - -
TOTAL PLYMOUTH MARINE INFIRMARY - - - £		1,606 - -	{ 1,301 - - 99 - - *

DEAL:			
SALARIED ESTABLISHMENT:			
Staff Surgeon - - } Borne on the books of Her Majesty's Ship "Formidable," and		- - -	- - -
Assistant Surgeon - } paid Sea Pay under Vote No. 1. - - - - -		- - -	- - -
Washing, Shaving, Postage, Carriage of Stores, Funerals, and other small Expenses - - - - -		48 - -	48 - -
CONTINGENCIES - - - £.		48 - -	48 - -
WAGES:			
For the Wages of Matrons, Nurses, and other inferior Servants, and for Clothing for Nurses - - - - -		230 - -	230 - -
TOTAL DEAL MARINE INFIRMARY - - - £.		278 - -	278 - -

* Voted on the Supplementary Estimate, dated 17th July 1866.

A B S T R A C T.

ESTABLISHMENT.		SALARIES.		RENTS, RATES, TAXES, GAS, AND WATER.	
		1867-8.	1866-7.	1867-8.	1866-7.
		£. s. d.	£. s. d.	£. s. d.	£. s. d.
MEDICAL ESTABLISHMENTS AT HOME.	HASLAR - - - - -	7,446 - -	{ 6,406 12 6 382 - -	826 - -	847 16 -
	PLYMOUTH - - - - -	4,701 - -	{ 3,976 - - 220 - -	477 - -	467 - -
	HAULBOWLINE - - - - -	815 - -	{ 866 7 6 40 - -	- -	- -
	YARMOUTH - - - - -	1,409 - -	{ 1,139 10 - 70 - -	279 - -	278 14 -
TOTAL MEDICAL ESTABLISHMENTS AT HOME - - - - - } - £.		14,371 - -	{ 12,388 10 - 712 - -*	1,582 - -	1,593 10 -
MEDICAL ESTABLISHMENTS ABROAD.	MALTA - - - - -	2,034 - -	{ 1,534 5 - 178 - -	100 - -	100 - -
	BERMUDA - - - - -	1,670 - -	{ 1,499 15 - 125 - -	- -	- -
	JAMAICA - - - - -	2,040 - -	{ 1,695 5 - 188 - -	- -	97 2 10
	ASCENSION - - - - -	- -	- -	- -	- -
	CAPE OF GOOD HOPE - - - - -	971 - -	{ 797 2 6 59 - -	40 - -	- -
	HONG KONG - - - - -	2,621 - -	{ 2,278 10 - 193 - -	- -	- -
TOTAL MEDICAL ESTABLISHMENTS ABROAD - - - - - } - £.		9,336 - -	{ 7,804 17 6 743 - -*	140 - -	197 2 10
MARINE INFIRMARIES.	WOOLWICH - - - - -	1,443 - -	{ 1,167 5 - 103 - -	406 - -	376 - -
	CHATHAM - - - - -	1,502 - -	{ 1,175 15 - 89 - -	221 - -	201 - -
	PORTSMOUTH (Marine Infirmary, Forton) - - - - -	1,111 - -	{ 848 12 6 89 - -	70 - -	70 - -
	PORTSMOUTH (Marine Artillery Infirmary, Fort Cumberland) - - - - -	1,120 - -	{ 666 2 6 86 - -	80 - -	115 - -
	PLYMOUTH - - - - -	1,126 - -	{ 821 5 - 99 - -	49 - -	49 - -
	DEAL - - - - -	- -	- -	- -	- -
TOTAL MARINE INFIRMARIES - - - - - } - £.		6,302 - -	{ 4,679 - - 466 - -*	826 - -	811 - -
TOTAL MEDICAL ESTABLISHMENTS AT HOME AND ABROAD - - - - - } - £.		30,009 - -	{ 24,872 7 6 1,921 - -*	2,548 - -	2,601 12 10

* Voted on Supplementary

AT HOME AND ABROAD—continued.

A B S T R A C T.

CONTINGENCIES.		WAGES, HOSPITAL ATTENDANTS, &c.		WAGES, &c., POLICE FORCE.		REQUIRED for the Service of the Year 1867-8.	LAST VOTE for the Financial Year 1866-7.
1867-8.	1866-7.	1867-8.	1866-7.	1867-8.	1866-7.		
£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
605 - -	585 11 6	8,474 - -	8,474 - -	1,086 - -	1,052 - -	18,437 - -	{ 17,366 - - 382 - -
204 - -	204 - -	4,923 - -	4,911 - -	891 - -	825 - -	11,196 - -	{ 10,383 - - 220 - -
56 - -	56 12 6	713 - -	652 - -	- -	- -	1,584 - -	{ 1,575 - - 40 - -
287 - -	287 16 -	1,630 - -	1,585 - -	- -	- -	3,605 - -	{ 3,291 - - 70 - -
1,152 - -	1,134 - -	15,740 - -	15,622 - -	1,977 - -	1,877 - -	34,822 - -	{ 32,615 - - 712 - -*
68 - -	118 15 -	1,655 - -	1,733 - -	- -	- -	3,857 - -	{ 3,486 - - 178 - -
14 - -	14 5 -	965 - -	810 - -	- -	- -	2,649 - -	{ 2,324 - - 125 - -
28 - -	48 12 2	840 - -	836 - -	- -	- -	2,908 - -	{ 2,677 - - 188 - -
- -	- -	402 - -	402 - -	- -	- -	402 - -	402 - -
64 - -	63 17 6	590 - -	581 - -	- -	- -	1,665 - -	{ 1,442 - - 59 - -
105 - -	104 10 -	774 - -	738 - -	- -	- -	3,500 - -	{ 3,121 - - 193 - -
279 - -	349 19 8	5,226 - -	5,100 - -	- -	- -	14,981 - -	{ 13,452 - - 743 - -*
51 - -	50 15 -	1,903 - -	2,003 - -	523 - -	489 - -	4,326 - -	{ 4,086 - - 103 - -
80 - -	80 5 -	1,826 - -	1,826 - -	277 - -	266 - -	3,906 - -	{ 3,549 - - 89 - -
10 - -	10 7 6	47 - -	47 - -	- -	- -	1,238 - -	{ 976 - - 89 - -
78 - -	78 17 6	251 - -	251 - -	- -	- -	1,529 - -	{ 1,111 - - 86 - -
31 - -	30 15 -	400 - -	400 - -	- -	- -	1,606 - -	{ 1,301 - - 99 - -
48 - -	48 - -	230 - -	230 - -	- -	- -	278 - -	278 - -
298 - -	299 - -	4,657 - -	4,757 - -	800 - -	755 - -	12,883 - -	{ 11,301 - - 466 - -*
1,729 - -	1,782 19 8	25,623 - -	25,479 - -	2,777 - -	2,632 - -	62,686 - -	{ 57,368 - - 1,921* - -

Estimate, dated 17th July 1866.

— No. 9. —

MARINE DIVISIONS.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
WOOLWICH:		
Barrack Master, at 10 <i>s.</i> a day* - - - - -	£. <i>s.</i> <i>d.</i> 182 10 -	£. <i>s.</i> <i>d.</i> 182 10 -
Two Barrack Serjeants, at 2 <i>s.</i> 6 <i>d.</i> a day each - - - - -	91 5 -	91 5 -
Barrack Clerk, at 6 <i>d.</i> a day - - - - -	9 2 6	9 2 6
Schoolmistress, for the Education of the Female Children of the Royal Marines - - - - -	36 - -	36 - -
Pupil Teacher for ditto - - - - -	18 - -	18 - -
One Day's Pay for Leap Year - - - - -	1 - -	- - -
Allowance to the Barrack Master for House Rent, at 1 <i>l.</i> 1 <i>s.</i> a week, including commuted Allowance for Fuel and Lights - - - - -	55 - -	54 15 -
Lodging Allowance to Officers and Staff Non-Commissioned Officers unprovided with Quarters - - - - -	753 - -	753 - -
Ground Rent of Premises in Francis-street - - - - -	5 - -	5 - -
Ground Rent of Barracks - - - - -	180 - -	180 - -
Rates and Taxes - - - - -	120 - -	120 9 6
Lighting the Barracks with Gas - - - - -	745 - -	685 - -
Water supplied for Barracks - - - - -	500 - -	300 - -
Allowance to Vicar for Accommodation of Marines at Deptford Church - - - - -	30 - -	30 - -
Allowance for the Accommodation of the Royal Marines in the Scotch Church - - - - -	70 - -	70 - -
Allowance to Roman Catholic Priest for Chapel Accommodation, &c. for the Royal Marines - - - - -	100 - -	100 - -
Allowance for Accommodation of Royal Marines in the Wesleyan Chapel - - - - -	30 - -	30 - -
Grant in aid of the Expense of the Industrial Schools - - - - -	30 - -	30 - -
Contribution towards the Maintenance of a Recreation Room - - - - -	30 - -	30 - -
Contribution towards the Maintenance of the Military Police Force - - - - -	50 - -	50 - -
Allowance in aid of the Expense of the Divisional Band of Music - - - - -	91 - -	91 - -
Washing Bedding, Compensation for Loss of Washing Sheet Money, Funerals, Carriage of Baggage, Postage and Stationery Allowance to Commandants, Adjutants, and Paymasters for Divisional Companies and their Offices, Measuring Coals, Lighting Lamps, and other small Expenses - - - - -	544 2 6	544 18 -
Salaries - - - - - £. 337 17 6	£. 3,671 - -	£. 3,411 - -
Rents, Rates, &c. - - - - - 2,358 - -		
Contingencies - - - - - 975 2 6		
CHATHAM:		
Barrack Master, at 15 <i>s.</i> a day* - - - - -	273 15 -	273 15 -
Barrack Serjeant, at 2 <i>s.</i> 6 <i>d.</i> a day - - - - -	45 12 6	45 12 6
Barrack Clerk, at 6 <i>d.</i> a day - - - - -	9 2 6	9 2 6
Schoolmistress for the Education of the Female Children of the Royal Marines - - - - -	36 - -	36 - -
Assistant Schoolmistress for the Infant Schools - - - - -	13 - -	10 2 2
Monitress at School - - - - -	4 - -	4 - -
One Day's Pay for Leap Year - - - - -	1 - -	- - -
Allowance to Barrack Master for House Rent, at 1 <i>l.</i> 1 <i>s.</i> a week, including commuted Allowance for Fuel and Lights - - - - -	55 - -	54 15 -
Lodging Allowance to Officers and Staff Non-Commissioned Officers unprovided with Quarters - - - - -	452 - -	452 - -
Rates and Taxes - - - - -	76 - -	76 6 -
Lighting the Barracks with Gas - - - - -	880 - -	530 - -
Water for Barracks at Milton, Gravesend - - - - -	32 - -	- - -
Allowance for the Accommodation of the Royal Marines at Chatham Church - - - - -	60 - -	60 - -
Ditto - - - - - ditto - - - - - in Scotch Church at Rochester - - - - -	56 - -	56 - -
Ditto - - - - - ditto - - - - - in Wesleyan Chapel at Chatham - - - - -	65 - -	65 - -
Allowance to Roman Catholic Priest for performance of Religious Duties to the Royal Marines - - - - -	60 - -	60 - -
Grant in aid of the Expense of the Industrial Schools - - - - -	30 - -	30 - -
Contribution towards the Maintenance of a Recreation Room - - - - -	30 - -	30 - -
Ditto - - - - - ditto - - - - - Military Police Force - - - - -	70 - -	70 - -
Allowance in aid of the Expense of the Divisional Band of Music - - - - -	91 - -	91 - -
Washing Bedding, Compensation for loss of Washing Sheet Money, Funerals, Carriage of Baggage, Postage and Stationery Allowance to Commandants, Adjutants, and Paymasters for Divisional Companies and Offices, Measuring Coals, Lighting Lamps, and other small Expenses - - - - -	500 10 -	410 6 10
Salaries - - - - - £. 382 10 -	£. 2,840 - -	£. 2,364 - -
Rents, Rates, &c. - - - - - 1,495 - -		
Contingencies - - - - - 962 10 -		

* In addition to Half-pay.

No. 9.—MARINE DIVISIONS—continued.

PORTSMOUTH (FORTON):

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
Barrack Master, at 10 s. a day* - - - - -	182 10 -	182 10 -
Barrack Serjeant, at 2 s. 6 d. a day - - - - -	45 12 6	45 12 6
Barrack Clerk, at 6 d. a day - - - - -	9 2 6	9 2 6
Schoolmistress for the Education of the Female Children of the Royal Marines - - -	36 - -	36 - -
Assistant Schoolmistress for the Infant Schools - - - - -	13 - -	9 - -
Monitress at School - - - - -	4 - -	4 - -
Second Monitress at the Girls' School - - - - -	4 - -	- - -
One Day's Pay for Leap Year - - - - -	1 - -	- - -
Allowance to Barrack Master for House Rent, at 1 l. 1 s. a week, including commuted Allowance for Fuel and Lights - - - - -	55 - -	54 15 -
Lodging Allowance to Officers and Staff Non-Commissioned Officers unprovided with Quarters - - - - -	1,040 - -	1,040 - -
Lodging Allowance to additional Chaplain of Her Majesty's Ship "Victory," for Duties to the Royal Marines - - - - -	64 - -	- - -
Rates and Taxes - - - - -	87 - -	87 - -
Lighting the Barracks with Gas - - - - -	480 - -	460 - -
Conveyance of Marines, per Floating Bridge, between Portsmouth and Gosport - - -	95 - -	95 - -
Allowance to Roman Catholic Priest for performance of Religious Duties to the Marines -	55 - -	55 - -
Allowance for the Accommodation of the Royal Marines at the Scotch Church - - -	18 - -	18 - -
Ditto - - - - - ditto - - - - - at the Wesleyan Chapel at Gosport - - -	60 - -	60 - -
Allowance to the Incumbent of St. John's, Forton, for use of his Church until a Chapel is built - - - - -	70 - -	- - -
Grant in aid of the Expense of the Industrial Schools - - - - -	30 - -	30 - -
Contribution towards the Maintenance of a Recreation Room - - - - -	30 - -	30 - -
Allowance in aid of the Expense of the Divisional Band of Music - - - - -	91 - -	91 - -
Washing Bedding, Compensation for loss of Washing Sheet Money, Funerals, Carriage of Baggage, Postage and Stationery Allowance to Commandants, Adjutants and Paymasters for Divisional Companies and Offices, Measuring Coals, Lighting Lamps, and other small Expenses - - - - -	600 15 -	600 - -
Salaries - - - - - £. 295 5 -	3,071 - -	2,907 - -
Rents, Rates, &c. - - - - - 1,726 - -		
Contingencies - - - - - 1,049 15 -		

PORTSMOUTH:

MARINE ARTILLERY, FORT CUMBERLAND:

Barrack Master, at 10 s. a day* - - - - -	182 10 -	136 17 6
Barrack Serjeant, at 2 s. 6 d. a day - - - - -	45 12 6	45 12 6
Two Barrack Clerks, at 6 d. a day each - - - - -	18 5 -	18 5 -
Schoolmistress for the Education of the Female Children of the Royal Marine Artillery -	36 - -	36 - -
Assistant Schoolmistress - - - - -	10 - -	10 7 3
Assistant Schoolmistress for the Infant School - - - - -	15 - -	11 9 7
Monitress at Girls' School - - - - -	4 - -	- - -
One Day's Pay for Leap Year - - - - -	1 - -	- - -
Allowance to Barrack Master for House Rent, at 1 l. 1 s. a week, including commuted Allowance for Fuel and Lights - - - - -	55 - -	54 15 -
Lodging Allowance to Officers and Staff Non-Commissioned Officers unprovided with Quarters - - - - -	1,200 - -	1,200 - -
Lodging Allowance to Assistant Chaplain of Her Majesty's Ship "Victory," for Duties to the Royal Marine Artillery, &c. - - - - -	64 - -	63 7 6
Rates and Taxes - - - - -	310 - -	120 - -
Lighting the Barracks with Gas - - - - -	500 - -	300 - -
Water supplied for Barracks - - - - -	500 - -	300 - -
Allowance for the Accommodation of the Royal Marine Artillery in the Wesleyan Chapel at Portsea - - - - -	50 - -	30 - -
Ditto - - - - - ditto - - - - - Scotch Church at Portsmouth - - - - -	25 - -	25 - -
Ditto - - - - - ditto - - - - - Roman Catholic Chapel at Portsea - - - - -	40 - -	- - -
Conveyance of the Royal Marine Artillery, per Floating Bridge, between Portsmouth and Gosport - - - - -	40 - -	40 - -
Grant in aid of the Expense of the Industrial Schools - - - - -	30 - -	30 - -
Contribution towards the Maintenance of a Recreation Room - - - - -	30 - -	30 - -
Allowance in aid of the Expense of the Divisional Band of Music - - - - -	91 - -	91 - -
Washing Bedding, Funerals, Carriage of Baggage, Postage and Stationery Allowance to Commandants, Adjutants and Paymasters for Divisional Companies and their Offices, Measuring Coals, Lighting Lamps, and other small Expenses - - - - -	500 12 6	400 5 8
Salaries - - - - - £. 312 7 6	3,748 - -	2,943 - -
Rents, Rates, &c. - - - - - 2,629 - -		
Contingencies - - - - - 806 12 6		

* In addition to Half-pay.

No. 9.—MARINE DIVISIONS—*continued.*

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
PLYMOUTH:		
	£. s. d.	£. s. d.
Barrack Master, at 15s. a day *	273 15 -	273 15 -
Two Barrack Serjeants, at 2s. 6d. a day each	91 5 -	91 5 -
Barrack Clerk, at 6d. a day	9 2 6	9 2 6
Schoolmistress, for the Education of the Female Children of the Royal Marines	36 - -	36 - -
Pupil Teacher in lieu of Assistant Schoolmistress	13 - -	9 15 -
One Day's Pay for Leap Year	1 - -	- - -
Allowance to the Barrack Master for House Rent, at 1l. 1s. a week, including com- muted Allowance for Fuel and Lights	55 - -	54 15 -
Lodging Allowance to Officers and Staff Non-Commissioned Officers unprovided with Quarters	1,100 - -	1,100 - -
Lodging Allowance to additional Chaplain of Her Majesty's Ship "Royal Adelaide" for Duties to the Royal Marines	64 - -	- - -
Rent of a House hired for Marine Officers' Quarters	55 - -	55 - -
Ground Rent for the Barracks	21 - -	21 6 -
Rates and Taxes	115 - -	85 - -
Lighting the Barracks with Gas	625 - -	545 - -
Water supplied for the Barracks	41 - -	41 - -
Allowance for the Accommodation of the Marines in the Wesleyan Chapel at Stonehouse	60 - -	60 - -
Ditto - - - - ditto - - - in the Roman Catholic Chapel at Stonehouse	44 - -	44 - -
Grant in aid of the Expense of Industrial Schools	30 - -	30 - -
Contribution towards the Maintenance of a Recreation Room	30 - -	30 - -
Contribution towards the Maintenance of the Military Police Force at Devonport	50 - -	50 - -
Allowance in aid of the Expense of the Divisional Band of Music	91 - -	91 - -
Washing Bedding, Compensation for loss of Washing Sheet Money, Funerals, Carriage of Baggage, Postage and Stationery Allowance to Commandants, Adjutants, and Paymasters for Divisional Companies and their Offices, Measuring Coals, Lighting Lamps, and other small Expenses	550 17 6	626 1 6
Salaries - - - - £. 424 2 6 }	3,356 - -	3,253 - -
Rents, Rates, &c. - - - 2,076 - - }		
Contingencies - - - - 855 17 6 }		
DEAL RECRUITING DEPÔT:		
(The Duties of the Barrack Master are performed by the Acting Quartermaster.)		
Allowance to a Serjeant, Royal Marines, as Acting Schoolmaster	27 7 6	18 5 -
Acting Schoolmistress	16 - -	16 - -
Lodging Allowance to Officers and Staff Non-Commissioned Officers unprovided with Quarters	110 - -	110 - -
Allowance to the Acting Schoolmaster in lieu of Quarters, Fuel, and Lights, at 8s. 6d. a-week	22 - -	- - -
Rates and Taxes	6 - -	2 - -
Lighting the Depôt with Gas	210 - -	210 - -
Water supplied for the Depôt	100 - -	55 - -
Allowance to a Roman Catholic Priest for performance of Religious Duties to the Marines	42 - -	42 - -
Allowance for the Accommodation of the Royal Marines in the Scotch Church	16 - -	16 - -
Ditto - - - - ditto - - - in the Wesleyan Chapel	20 - -	20 - -
Grant in aid of the Expense of the Industrial Schools	10 - -	10 - -
Contribution towards the Maintenance of a Recreation Room	10 - -	- - -
Washing Bedding, Funerals, Carriage of Baggage and Stores, Postage and Stationery Allowance, Lighting Lamps, and other small Expenses	172 12 6	172 15 -
Salaries - - - - £. 43 7 6 }	762 - -	672 - -
Rents, Rates, &c. - - - 448 - - }		
Contingencies - - - - 270 12 6 }		

* In addition to Half-pay.

No. 9.—MARINE DIVISIONS—*continued.*

A B S T R A C T.

DIVISIONS.	SALARIES.		RENTS, RATES, TAXES, GAS, AND WATER.		CONTINGENCIES.		Required for the Service of the Year 1867-68.	Last Vote for the Financial Year 1866-67.
	1867-68.	1866-67.	1867-68.	1866-67.	1867-68.	1866-67.		
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
WOOLWICH - - - -	337 17 6	336 17 6	2,358 - -	2,098 4 6	975 2 6	975 18 -	3,671 - -	3,411 - -
CHATHAM - - - -	382 10 -	378 12 2	1,495 - -	1,113 1 -	962 10 -	872 6 10	2,840 - -	2,364 - -
PORTSMOUTH (MARINE BAR- RACKS, FORTON) - - - }	295 5 -	286 5 -	1,726 - -	1,641 15 -	1,049 15 -	979 - -	3,071 - -	2,907 - -
PORTSMOUTH (MARINE ARTIL- LERY BARRACKS, FORT CUMBERLAND) - - - }	312 7 6	258 11 10	2,629 - -	2,038 2 6	806 12 6	646 5 8	3,748 - -	2,943 - -
PLYMOUTH - - - -	424 2 6	419 17 6	2,076 - -	1,902 1 -	855 17 6	931 1 6	3,356 - -	3,253 - -
DEAL (RECRUITING DEPÔT) -	43 7 6	34 5 -	448 - -	377 - -	270 12 6	260 15 -	762 - -	672 - -
TOTAL - - £.	1,795 10 -	1,714 9 -	10,732 - -	9,170 4 -	4,920 10 -	4,665 7 -	17,448 - -	15,550 - -

cy

—No.

NAVAL STORES FOR THE BUILDING, REPAIR AND OUTFIT OF THE FLEET

	REQUIRED for the Service of the Year 1867/68.		LAST VOTE for the Financial Year 1866/67.	
	£.	s. d.	£.	s. d.
SECTION I.—STOREKEEPER GENERAL OF THE NAVY.				
For the Purchase of Naval Stores, for the Building, Repair and Outfit of the Fleet and Coast Guard, viz.:				
Timber, Masts, Deals, &c. - - - - -	71,625	- -	117,563	- -
Metals and Metal Articles (including Returns from Ships Broken up), viz.:				
Copper and Copper Articles, Iron and Iron Articles, Pig Iron, Iron Wire Rope, Anchors, Cables, Fire- hearths, Lead, &c. - - - - - £. 216,360				
Abate:				
Estimated Value of Materials returned from Ships broken up for future issue - - - - - 38,000	178,360	- -	202,280	- -
Iron Armour Plates, Iron Beams, and Iron Masts - - - - -	132,000	- -	123,000	- -
Hemp, Canvas, Hammocks, Seamen's Bags, Coal Sacks, Colours, Bunting, Worsted, Fearnought, and Kersey - - - - -	80,944	- -	125,210	- -
Paint Materials, Oil, Pitch, Tar, Tallow, Boats, Capstans, Furniture for Ships, &c., Glass and Glaziers' Wares, Hides and Leather, Pump and Engine Gear, and various Miscellaneous Stores - - - - -	187,194	- -	169,934	- -
Coals and other Fuel, viz.:				
For Steam Vessels - - - - - £. 156,413				
For Dockyard purposes - - - - - 51,118	*207,531	- -	308,084	- -
For local Purchases of Stores at Coast Guard Stations - - - - -	5,000	- -	5,000	- -
For Freight and sundry Expenses connected with Naval Stores - - - - -	20,000	- -	23,000	- -
£.	882,654	- -	1,074,071	- -
Abate:				
Materials for Making and Repairing Yard Machinery, chargeable to Vote No. 11, New Works, &c., and provided for under that Vote (<i>see</i> page 86) -	27,143	- -	20,570	- -
Coals for Her Majesty's Troop Ships, provided for under Vote No. 17 -	*No amount is in- cluded this year in Vote No. 10 for this service.		50,000	- -
TOTAL - - - £.	855,511	- -	1,003,501	- -

10. —

AND COAST GUARD, STEAM MACHINERY, AND SHIPS BUILT BY CONTRACT.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
SECTION II.—CONTROLLER OF THE NAVY.		
For the Purchase of Steam Machinery for Her Majesty's Ships and Vessels, and for Payments to be made for Ships and Vessels building or to be built by Contract, viz.:	£. s. d.	£. s. d.
STEAM MACHINERY FOR HER MAJESTY'S SHIPS AND VESSELS:		
For Engines already ordered - - - - -	170,247 - -	142,000 - -
For Engines to be ordered - - - - - £. 464,700		
Deduct: Amount to be voted in future years to complete } contracts - - - - - }	272,688	
	192,012 - -	59,000 - -
TOTAL for Steam Engines - - - £.	362,259 - -	201,000 - -
SHIPS BUILDING BY CONTRACT, &c.:		
For Iron Armour-plated Ship "Northumberland" - - - - -	- - -	{ 60,000 - - 10,000 - - Suppl ^y . Estimate.
For a Ship to be built on the design of Captain Coles:		
Contract Price - - - - - £. 275,000		
Deduct:—Amount to be voted in future Years - - - 191,650		
	83,350 - -	{ 10,000 - - Suppl ^y . Estimate.
For Armour-plated Ships, Iron Ships, and Gun Boats:		
Estimated Cost - - - - - £. 745,000		
Deduct:—Amount to be voted in future Years - - - 400,650		
	344,350 - -	—
For Gun Boats and other Vessels building by Contract - - - - -	- - -	7,000 - -
For Experimental Purposes - - - - -	10,000 - -	10,000 - -
For the Purchase of Dockyard Tugs - - - - -	26,600 - -	6,000 - -
For Building and Repairing Coast Guard Tenders - - - - -	12,000 - -	12,000 - -
For the Repairs of Ships at other than Her Majesty's Dockyards - - -	20,000 - -	20,000 - -
For Subsistence and Travelling Expenses of Dockyard Officers and others superintending Ships building by Contract - - - - -	2,000 - -	2,000 - -
TOTAL - - - £.	860,559 - -	{ 318,000 - - 20,000 - - Suppl ^y . Estimates.

— No. 11. —

NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS.

DESCRIPTION OF WORKS for each Establishment.	1. TOTAL ESTIMATE for the Work.	2. AMOUNT already Voted for it.	3. GROSS SUM already Ex- pended upon it. (Posted to 31 Dec. 1866.)	4. VOTE REQUIRED for the ensuing Year 1867-68.	5. Further ESTIMATE for completing the Work.
	£.	£.	£.	£.	£.
NAVAL YARDS AT HOME.					
DEPTFORD:					
Renewing Roof of Slip No. 5 - - - - -	-	-	-	650	
Clearing Mud from Basin - - - - -	-	-	-	950	
Foundations for Machinery - - - - -	-	-	-	120	
Other Works under 500 l. each - - - - -	-	-	-	250	
Repairs and Maintenance of Buildings } For details, see App. p. 162 and 165. {	-	-	-	1,840	
TOTAL Works and Buildings - - - £.	-	-	-	3,810	
New Machinery - - - - -	-	-	-	637	
Repairs to Plant and Machinery - - - - -	-	-	-	500	
TOTAL Machinery - - - £.	-	-	-	1,137	
TOTAL DEPTFORD YARD - - - £.	-	-	-	4,947	—
WOOLWICH:					
Roofing over space between Wings of Plate-bending Shed - - - - - £. 800	1,250	800	-	450	
Supplementary Estimate - - - - - 450	-	-	-	-	
Foundations for Machinery - - - - -	-	-	-	650	
Other Works under 500 l. each - - - - -	-	-	-	290	
Repairs and Maintenance of Buildings } For details, see App. p. 162 and 165. {	-	-	-	3,850	
TOTAL Works and Buildings - - - £.	-	-	-	5,240	
New Machinery - - - - -	-	-	-	1,000	
Repairs to Plant and Machinery - - - - -	-	-	-	4,500	
TOTAL Machinery - - - £.	-	-	-	5,500	
TOTAL WOOLWICH YARD - - - £.	-	-	-	10,740	—
Carried forward - - - £.				15,687	

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—continued.

DESCRIPTION OF WORKS for each Establishment.	1.	2.	3.	4.		5.
	TOTAL ESTIMATE for the Work.	AMOUNT already Voted for it.	GROSS SUM already Ex- pended upon it. (Posted to 31 Dec. 1866.)	VOTE REQUIRED for the ensuing Year, 1867-68.		Further ESTIMATE for completing the Work
	£.	£.	£.	£.	£.	£.
Brought forward - - -	- - -	- - -	- - -	- - -	15,687	—
NAVAL YARDS AT HOME—continued.						
CHATHAM:						
Extension of the Yard - - - - -	1,250,000	327,500	267,017	149,500*	- - -	790,000
Millwrights' Shop - - - - -	- - -	- - -	- - -	600		
Clearing Harbour of Mud - - - - -	- - -	- - -	- - -	2,500		
Foundations for Machinery - - - - -	- - -	- - -	- - -	4,290		
Other Works under 500 l. each - - -	For details, see App. p. 162 and 165.	- - -	- - -	660		
Repairs and Maintenance of Buildings -		- - -	- - -	4,780		
TOTAL Works and Buildings - - - £.	- - -	- - -	- - -	162,330		
New Machinery - - - - -	- - -	- - -	- - -	16,294		
Repairs to Plant and Machinery - - -	- - -	- - -	- - -	9,500		
TOTAL Machinery - - - £.	- - -	- - -	- - -	25,794		
TOTAL CHATHAM YARD - - - £.	- - -	- - -	- - -	- - -	188,124	—
SHEERNESS:						
Foundations for Machinery - - - - -	- - -	- - -	- - -	40		
Other Works under 500 l. each - - -	For details, see App. p. 162 and 165.	- - -	- - -	880		
Repairs and Maintenance of Buildings -		- - -	- - -	2,300		
TOTAL Works and Buildings - - - £.	- - -	- - -	- - -	3,220		
New Machinery - - - - -	- - -	- - -	- - -	911		
Repairs to Plant and Machinery - - -	- - -	- - -	- - -	3,000		
TOTAL Machinery - - - £.	- - -	- - -	- - -	3,911		
TOTAL SHEERNESS YARD - - - £.	- - -	- - -	- - -	- - -	7,131	—
Carried forward - - - £.					210,942	

* Contract, 110,000l. ; convict, 39,500l.

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—continued.

DESCRIPTION OF WORKS for each Establishment.	1.	2.	3.	4.		5.
	TOTAL ESTIMATE for the Work.	AMOUNT already Voted for it.	GROSS SUM already Ex- pended upon it. (Posted to 31 Dec. 1866.)	VOTE REQUIRED for the ensuing Year, 1867-68.		Further ESTIMATE for completing the Work.
	£.	£.	£.	£.	£.	£.
Brought forward - - -	- - -	- - -	- - -	- - -	210,942	
NAVAL YARDS AT HOME—continued.						
PORTSMOUTH:						
Extension of the Yard - - - - -	1,500,000	215,000	100,256	228,800*	- -	1,125,000
Workshops for the Repairs of Iron Ships - - -	20,000	10,000	- -	10,000†	- -	4,000
Jetties at Stern of Slips, Nos. 2, 3, 4, and 5 - - -	10,000	- -	- -	2,000	- -	8,000
Lengthening Roof to Dock No. 4 - - - - -	- -	- -	- -	1,080		
New Roof to Factory - - - - -	- -	- -	- -	1,280		
Extension of Paint Store over Camber - - - - -	- -	- -	- -	1,000		
Extension of Railways - - - - -	- -	- -	- -	2,000		
Dredging and removing Mud from Harbour - - -	- -	- -	- -	5,000		
Foundations for Machinery - - - - -	- -	- -	- -	4,300		
Other Works under 500 l. each - - -	- -	- -	- -	1,290		
Repairs and Maintenance of Buildings at Dockyard and Haslar Gun Boat Slips - - - - -	For details, see App., p. 162 and 165.		- -	6,900		
TOTAL Works and Buildings - - - £.			- -	263,650		
New Machinery - - - - -	- -	- -	- -	5,845		
Repairs to Plant and Machinery - - - - -	- -	- -	- -	11,000		
TOTAL Machinery - - - £.	- -	- -	- -	16,845		
TOTAL PORTSMOUTH YARD - - - £.	- -	- -	- -	- -	280,495	—
DEVONPORT:						
Dredging and blasting Rock at South End of Anchor Wharf Jetty - - - - -	- -	- -	- -	1,780		
Foundations for Machinery - - - - -	- -	- -	- -	610		
Other Works under 500 l. each - - -	For details, see App. p. 162 and 165.		- -	1,710		
Repairs and Maintenance of Buildings			- -	3,820		
TOTAL Works and Buildings - - - £.	- -	- -	- -	7,920		
New Machinery - - - - -	- -	- -	- -	3,570		
Repairs to Plant and Machinery - - - - -	- -	- -	- -	3,000		
TOTAL Machinery - - - £.	- -	- -	- -	6,570		
TOTAL DEVONPORT YARD - - - £.	- -	- -	- -	- -	14,490	—
Carried forward - - - £.				- -	503,927	

* Contract, 180,000 l.; Convict, 48,800 l. † 4,000 l., Re-vote.

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—*continued.*

DESCRIPTION OF WORKS for each Establishment.	1.	2.	3.	4.		5.
	TOTAL ESTIMATE for the Work.	AMOUNT already Voted for it.	GROSS SUM already Ex- pended upon it (Posted to 31 Dec. 1866.)	VOTE REQUIRED for the ensuing Year, 1867-68.		Further ESTIMATE for completing the Work.
	£.	£	£.	£.	£.	£.
Brought forward - - -	- -	- -	- -	- -	505,927	—
NAVAL YARDS AT HOME— <i>continued.</i>						
KEYHAM:						
Constructing Basins, Docks, and Factory, £. 1,425,000	1,435,000	1,342,500	1,413,217	15,550		
Add, Supplementary, to complete - - 10,000						
Building, Foundations, &c., for additional	14,000	6,000	900	5,730		
Pumping Power for South Basin - - } 8,000						
Add, Revised Estimate, and for addi-	6,000					
tional deep Well for three throw } 6,000						
Pumps - - - - -						
Foundations for Machinery - - - - -	- -	- -	- -	810		
Other Works under 500 l. each - - -	- -	- -	- -	620		
Repairs and Maintenance of Buildings } For details, see App., p. 162 and 165. }	- -	- -	- -	2,790		
Total Works and Buildings - - - £.	- -	- -	- -	25,500		
New Machinery - - - - -	- -	- -	- -	10,550		
Repairs to Plant and Machinery - - -	- -	- -	- -	4,600		
Total Machinery - - - £.	- -	- -	- -	15,150		
TOTAL KEYHAM YARD - - - £	- -	- -	- -	- -	40,650	—
PLYMOUTH SOUND:						
Works at the Breakwater, Repairs and Maintenance -	- -	- -	- -	2,670		
" " Repairing Damages to Ma- } sonry caused by recent } severe Gales - - - }	20,000	- -	- -	2,500		
					5,170	17,500
PEMBROKE:						
Renewing Covering of Roof of Steam Hammer Shop -	- -	- -	- -	1,000		
Foundations for Machinery - - - - -	- -	- -	- -	140		
Other Works under 500 l. each - - -	- -	- -	- -	650		
Repairs and Maintenance of Buildings } For details, see App. p. 163 and 165. }				4,580		
Total Works and Buildings - - - £.	- -	- -	- -	6,370		
New Machinery - - - - -	- -	- -	- -	2,562		
Repairs to Plant and Machinery - - -	- -	- -	- -	3,800		
Total Machinery - - - £.	- -	- -	- -	6,362		
TOTAL PEMBROKE YARD - - - £.	- -	- -	- -	- -	12,732	—
Carried forward - - - £				- -	561,479	

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—*continued.*

DESCRIPTION OF WORKS for each Establishment.	1.	2.	3.	4.		5.
	TOTAL ESTIMATE for the Work.	AMOUNT already Voted for it.	GROSS SUM already Ex- pended upon it. (Posted to 31 Dec. 1866.)	VOTE REQUIRED for the ensuing Year, 1867-68.		Further ESTIMATE for completing the Work.
	£.	£.	£.	£.	£.	£.
Brought forward - - -	- -	- -	- -	- -	564,479	
NAVAL YARDS AT HOME— <i>continued.</i>						
HAULBOWLINE:						
For the Construction of a Dock by convict labour -	150,000	20,000	4,872	19,680	- -	120,000
Repairs and Maintenance of Build- ings - - - - - { For details, see App., p. 165. }	- -	- -	- -	900		
TOTAL, Works and Buildings - - - £.	- -	- -	- -	20,580		
TOTAL HAULBOWLINE - - - £.	- -	- -	- -	- -	20,580	—
HOBB'S POINT:						
Repairs and Maintenance of Build- ings - - - - - { For details, see App., p. 165. }	- -	- -	- -	- -	50	—
LEWES NAVAL PRISON:						
Repairs and Maintenance of Build- ings - - - - - { For details, see App., p. 165. }	- -	- -	- -	- -	200	—
VICTUALLING ESTABLISHMENTS AT HOME.						
ROYAL VICTORIA YARD, AT DEPTFORD:						
Extending Steam Cooperage - - - - -	- -	- -	- -	780		
Foundations for Machinery - - - - -	- -	- -	- -	420		
Other Works under 500 £. each - - -	- -	- -	- -	140		
Repairs and Maintenance of Build- ings - - - - - { For details, see App., p. 163 and 165. }	- -	- -	- -	1,200		
TOTAL, Works and Buildings - - - £.	- -	- -	- -	2,540		
New Machinery - - - - -	- -	- -	- -	3,485		
Repairs to Plant and Machinery - - -	- -	- -	- -	1,200		
TOTAL, Machinery - - - £.	- -	- -	- -	4,685		
TOTAL, VICTORIA YARD - - - £.	- -	- -	- -	- -	7,225	—
ROYAL CLARENCE YARD, AT GOSPORT:						
Works under 500 £. each - - - - -	- -	- -	- -	290		
Repairs and Maintenance of Build- ings - - - - - { For details, see App., p. 163 and 165. }	- -	- -	- -	640		
TOTAL, Works and Buildings - - - £.	- -	- -	- -	930		
Repairs to Plant and Machinery - - -	- -	- -	- -	1,250		
TOTAL, CLARENCE YARD - - - £.	- -	- -	- -	- -	2,180	
Carried forward - - - £.					594,714	

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—*continued.*

DESCRIPTION OF WORKS for each Establishment.	1. TOTAL ESTIMATE for the Work.	2. AMOUNT already Voted for it.	3. GROSS SUM already Ex- pended upon it. (Posted to 31 Dec. 1866.)	4. VOTE REQUIRED for the ensuing Year, 1867-68		5. Further ESTIMATE for completing the Work.
	£.	£.	£.	£.	£.	£.
Brought forward - - - -	-	-	-	-	594,714	-
VICTUALLING ESTABLISHMENTS AT HOME— <i>contd.</i>						
ROYAL WILLIAM YARD, AT PLYMOUTH:						
Repairs and Maintenance of Build- ings - - - - -	{	{	{	For details, see App., p. 165.		{
	-	-	-	730		
Repairs to Plant and Machinery - - - -	-	-	-	820		
TOTAL, ROYAL WILLIAM YARD - - - £.	-	-	-	-	1,550	-
MEDICAL ESTABLISHMENTS AT HOME.						
WOOLWICH:						
Repairs and Maintenance of Build- ings - - - - -	{	{	{	For details, see App., p. 165.		{
	-	-	-	-	1,000	-
CHATHAM:						
Repairs and Maintenance of Build- ings - - - - -	{	{	{	For details, see App., p. 165.		{
	-	-	-	-	1,000	-
HASLAR:						
Works under 500 <i>l.</i> each - - - -	{	{	{	For details, see App., pp. 163 and 165.		{
Repairs and Maintenance of Build- ings - - - - -						
	-	-	-	200		
	-	-	-	1,940		
TOTAL, Works and Buildings - - - £.	-	-	-	2,140		
Repairs to Plant and Machinery - - - -	-	-	-	800		
TOTAL, HASLAR HOSPITAL - - - £.	-	-	-	-	2,940	-
PLYMOUTH:						
Other Works under 500 <i>l.</i> each - - -	{	{	{	For details, see App., pp. 163 and 165.		{
Repairs and Maintenance of Build- ings - - - - -						
	-	-	-	150		
	-	-	-	1,500		
					1,650	-
YARMOUTH:						
Forming Exercising Ground - - - -	-	-	-	500		
Other Works under 500 <i>l.</i> each - - -	{	{	{	For details, see App., pp. 163 and 165.		{
Repairs and Maintenance of Build- ings - - - - -						
	-	-	-	1,420		
	-	-	-	570		
					2,490	-
Carried forward - - - £.					605,344	

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—*continued.*

DESCRIPTION OF WORKS for each Establishment.	1.	2.	3.	4.		5.
	TOTAL ESTIMATE for the Work.	AMOUNT already Voted for it.	GROSS SUM already Expended upon it. (Posted to 31 Dec. 1866.)	VOTE REQUIRED for the ensuing Year, 1867-68.		Further ESTIMATE for completing the Work.
	£.	£.	£.	£.	£.	£.
Brought forward - - -	- -	- -	- -	- -	605,844	—
MARINE BARRACKS AT HOME:						
DEPTFORD:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	- -	150	—
WOOLWICH:						
Other Works, under 500 l. each - { For details, see App., p. 163. }	- -	- -	- -	1,200		
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	700	1,900	—
CHATHAM:						
Schools for children - - - - -	2,000	- -	- -	820	- -	1,180
Other Works, under 500 l. each - { For details, see App., p. 163. }	- -	- -	- -	1,420		
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	1,000	3,240	—
PORTSMOUTH:						
<i>Forton Barracks:</i>						
Filling up the Mill Pond at Forton - - - -	6,400	3,000	1,800	2,000	- -	400
Additional huts at Browdown - - - - -	- -	- -	- -	850		
Additional accommodation at Mess Establishment -	- -	- -	- -	600		
Other Works under 500 l. each - { For details, see App., p. 164. }	- -	- -	- -	780		
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	1,820		
TOTAL Works and Buildings - - -	- -	- -	- -	6,050		
Repairs to Plant and Machinery - - - -	- -	- -	- -	50		
TOTAL FORTON BARRACKS - - -	- -	- -	- -	- -	6,100	—
<i>Marine Artillery Barracks (Eastney):</i>						
Constructing Officers' Quarters within Fort Cumber- land, and Quarters and Barracks for 1,200 Officers and Men of the Royal Marine Artillery outside the Fort, including Purchase of Ground, and Drain- age - - - - -	167,801	139,000	138,000	19,000		
Schools - - - - -	- -	- -	- -	2,000		
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	720	21,720	—
PLYMOUTH:						
Constructing additional Barrack Accom- modation - - - - - £. Additional for Purchase of Ground in rear of Barracks - - - - -	180,000 2,000 3,000	141,000 - - - -	124,957 - - - -	20,000 1,000 1,500	- - - - - -	20,000 1,000 1,500
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	1,000	23,500	—
<i>Millbay Barracks (Plymouth):</i>						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	- -	150	—
Carried forward - - -				£.	662,104	

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—*continued.*

DESCRIPTION OF WORKS for each Establishment.	1.	2.	3.	4.		5.
	TOTAL ESTIMATE for the Work.	AMOUNT already Voted for it.	GROSS SUM already Expended upon it. (Posted to 31 Dec. 1866.)	VOTE REQUIRED for the ensuing Year, 1867-68.		Further ESTIMATE for completing the Work.
	£.	£.	£.	£.	£.	£.
Brought forward - - -	-	-	-	-	662,104	—
MARINE BARRACKS— <i>continued.</i>						
DEAL (DEPÔT):						
Schoolroom and Quartermasters' Stores - - -	-	-	-	850		
Other works under 500 <i>l.</i> each - - { For details, see App., pp. 164	-	-	-	350		
Repairs and maintenance of Buildings { and 165. }	-	-	-	400	1,600	—
COAST GUARD (including IRELAND):						
Purchase and Erection of Buildings - - -	-	-	-	20,000		
Repairs and maintenance of Buildings { For details, see App., p. 165. }	-	-	-	10,230	30,230	—
ADMIRALTY, WHITEHALL AND SOMERSET HOUSE:						
General Repairs and Alterations to the Public Offices and Official Residences, also Packing Cases, Models, and Office Furniture - - - }	-	-	-	-	4,870	—
NAVAL ESTABLISHMENTS ABROAD.						
GIBRALTAR:						
Extension of the Mole for improving the Harbour -	122,500	80,157	75,028	3,700	-	40,000
Foundations for Machinery - - -	-	-	-	200		
Other Works under 500 <i>l.</i> each - { For details, see App., p. 164. }	-	-	-	150		
Repairs and maintenance of Buildings { For details, see App., p. 165. }	-	-	-	300		
TOTAL Works and Buildings - - -	-	-	-	4,350		
Repairs to Plant and Machinery - - - "	-	-	-	370		
TOTAL Machinery - - -	-	-	-	370		
TOTAL GIBRALTAR - - -	-	-	-	-	4,720	—
Carried forward - - -				£.	703,524	

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—continued.

DESCRIPTION OF WORKS for each Establishment.	1.	2.	3.	4.		5.
	TOTAL ESTIMATE for the Work.	AMOUNT already Voted for it.	GROSS SUM already Expended upon it. (Posted to 31 Dec. 1866.)	VOTE REQUIRED for the ensuing Year 1867-68.		Further ESTIMATE for completing the Work.
	£.	£.	£.	£.	£.	£.
Brought forward - - -	- -	- -	- -	- -	703,524	—
NAVAL ESTABLISHMENTS ABROAD—continued.						
MALTA:						
For the construction of a Dock and connection with the Dockyard - - - - -	120,000	33,000	10,602	30,000	- -	61,000
For Naval Prison - - - - -	16,500	14,000	8,050	1,000	- -	3,000
Coal Stores and Wharf Quarantine Harbour - -	- -	- -	- -	500		
Dredging in Harbours - - - - -	- -	- -	- -	2,000		
Other Works under 500 <i>l.</i> each - { For details, see App., p. 164. }	- -	- -	- -	50		
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	1,060		
TOTAL Works and Buildings - - -	- -	- -	- -	34,610		
Repairs to Plant and Machinery - - - - -	- -	- -	- -	733		
TOTAL Machinery - - - - -	- -	- -	- -	733		
TOTAL MALTA - - -	- -	- -	- -	- -	35,343	—
BERMUDA:						
For a Floating Dock - - - - -	250,000	50,000	42,498	112,000	- -	60,000
Saw-mills - - - - -	- -	- -	- -	700		
Foundations for Machinery - - - - -	- -	- -	- -	500		
Other Works under 500 <i>l.</i> each - { For details, see App., p. 164. }	- -	- -	- -	670		
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	1,210		
TOTAL Works and Buildings - - -	- -	- -	- -	115,080		
TOTAL BERMUDA - - -	- -	- -	- -	- -	115,080	—
Carried forward - - - £.				- -	853,947	

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—*continued.*

DESCRIPTION OF WORKS for each Establishment.	1. TOTAL ESTIMATE for the Work.	2. AMOUNT already Voted for it.	3. GROSS SUM already Expended upon it. (Posted to 31 Dec. 1866.)	4. VOTE REQUIRED for the ensuing Year, 1867-68.		5. Further ESTIMATE for completing the Work.
	£.	£.	£.	£.	£.	£.
Brought forward - - -	-	-	-	-	858,947	—
NAVAL ESTABLISHMENTS ABROAD— <i>continued.</i>						
HALIFAX:						
Removing Coal Stores to new Site and altering Coal Wharf - - - - -	1,300	400	-	240	-	660
Foundations for Machinery - - - - -	-	-	-	200	-	-
Other Works under 500 l. each - { For details, see App., p. 164. }	-	-	-	130	-	-
Repairs and maintenance of Buildings { For details, see App., p. 165. }	-	-	-	940	-	-
TOTAL Works and Buildings - - -	-	-	-	1,510	-	-
New Machinery - - - - -	-	-	-	80	-	-
Repairs to Plant and Machinery - - - - -	-	-	-	11	-	-
TOTAL Machinery - - - - -	-	-	-	91	-	-
TOTAL HALIFAX - - - - -	-	-	-	-	1,601	—
JAMAICA:						
Foundations for Machinery - - - - -	-	-	-	150	-	-
Other Works under 500 l. each - { For details, see App. p. 164. }	-	-	-	530	-	-
Repairs and maintenance of Buildings { For details, see App., p. 165. }	-	-	-	560	-	-
TOTAL Works and Buildings - - -	-	-	-	1,240	-	-
New Machinery - - - - -	-	-	-	270	-	-
TOTAL Machinery - - - - -	-	-	-	270	-	-
TOTAL JAMAICA YARD - - - - -	-	-	-	-	1,510	—
ANTIGUA:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	-	-	-	-	760	—
NASSAU:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	-	-	-	-	500	—
BARBADOES:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	-	-	-	-	100	—
ASCENSION:						
For Works generally - - - - -	-	-	-	-	510*	—
Carried forward - - -	-	-	-	£.	858,928	-

* The labour on these Works will be performed by Marines, the expense of which is not charged to Vote No. 11.

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—*continued.*

DESCRIPTION OF WORKS for each Establishment.	1.	2.	3.	4.		5.
	TOTAL ESTIMATE for the Work.	AMOUNT already Voted for it.	GROSS SUM already Expended upon it. (Posted to 31 Dec. 1866.)	VOTE REQUIRED for the ensuing Year, 1867-68.		Further ESTIMATE for completing the Work.
	£.	£.	£.	£.	£.	£.
Brought forward - - -	- -	- -	- -	- -	858,928	—
NAVAL ESTABLISHMENTS ABROAD— <i>continued.</i>						
FERNANDO PO:						
Coal store - - - - -	- -	- -	- -	- -	700	—
VANCOUVER'S ISLAND:						
Naval Ordnance Store - - - - -	- -	- -	- -	600		
Foundations for Machinery - - - - -	- -	- -	- -	150		
Other Works under 500 <i>l.</i> each { For details, see App., p. 164. }	- -	- -	- -	200		
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	600		
					1,550	—
CAPE OF GOOD HOPE:						
Foundations for Machinery - - - - -	- -	- -	- -	100		
Other Works under 500 <i>l.</i> each { For details, see App., p. 164. }	- -	- -	- -	630		
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	450		
TOTAL Works and Buildings - - - - -	- -	- -	- -	1,180		
New Machinery - - - - -	- -	- -	- -	260		
TOTAL Cape of Good Hope - - - - -	- -	- -	- -	- -	1,440	—
TRINCOMALEE:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	- -	350	—
HONG KONG AND KOWLOON:						
Other Works under 500 <i>l.</i> each { For details, see App., p. 164. }	- -	- -	- -	680		
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	270		
					950	—
VICTUALLING ESTABLISHMENTS ABROAD.						
GIBRALTAR:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	- -	150	—
MALTA:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	- -	370	—
HALIFAX:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	- -	150	—
CAPE OF GOOD HOPE:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	- -	100	—
Carried forward - - -				£.	864,688	

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—continued.

DESCRIPTION OF WORKS for each Establishment.	1.	2.	3.	4.		5.
	TOTAL ESTIMATE for the Work.	AMOUNT already Voted for it.	GROSS SUM already Expended upon it. (Posted to 31 Dec. 1866.)	VOTE REQUIRED for the ensuing Year, 1867-68.		Further ESTIMATE for completing the Work.
	£.	£.	£	£.	£.	£.
Brought forward - - -	- -	- -	- -	- -	864,688	--
MEDICAL ESTABLISHMENTS ABROAD.						
LISBON:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	- -	150	--
MALTA:						
Works under 500 l. each - - -	- -	- -	- -	220		
Repairs and maintenance of Buildings { For details, see App., p. 164 and 165. }	- -	- -	- -	590	810	--
BERMUDA:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	- -	470	--
JAMAICA:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	- -	270	--
CAPE OF GOOD HOPE:						
Repairs and maintenance of Buildings { For details, see App., p. 165. }	- -	- -	- -	- -	100	--
Add for Temporary Superintendence { For details, see App., p. 166. }	- -	- -	- -	- -	12,100	--
Contingencies for Works and Repairs - - -	- -	- -	- -	- -	10,000	--
			TOTAL - - -	£.	888,588	

No. 11.—NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS—*continued.*

A B S T R A C T.

	WORKS AND BUILDINGS.				MACHINERY.	TOTAL.
	Under Superintendence of the Director of Works.				Under Superintendence of the Controller of the Navy.	
	<i>Extensions of the Dockyards and Marine Barracks.</i>	<i>Other Works and Buildings.</i>	<i>Repairs.</i>	TOTAL.		
	£.	£.	£.	£.	£.	£.
NAVAL YARDS AT HOME - - -	418,580	53,380	32,010	498,870	81,269	580,139
NAVAL YARDS ABROAD - - -	145,700	10,590	7,100	163,390	1,724	165,114
VICTUALLING YARDS AT HOME - - -	- -	1,630	2,570	4,200	6,755	10,955
VICTUALLING YARDS ABROAD - - -	- -	- -	770	770	- -	770
MEDICAL ESTABLISHMENTS AT HOME - - -	- -	2,270	6,010	8,280	800	9,080
MEDICAL ESTABLISHMENTS ABROAD - - -	- -	220	1,580	1,800	- -	1,800
MARINE BARRACKS - - - -	46,320	6,050	5,940	58,310	50	58,360
COAST GUARD BUILDINGS - - - -	- -	20,000	10,230	30,230	- -	30,230
PLYMOUTH BREAKWATER - - - -	- -	2,500	2,670	5,170	- -	5,170
ADMIRALTY OFFICES - - - -	- -	- -	4,870	4,870	- -	4,870
TEMPORARY SUPERINTENDENCE - - -	12,100	- -	- -	12,100	- -	12,100
CONTINGENCIES - - - -	- -	10,000	- -	10,000	- -	10,000
TOTAL FOR 1867-68 - - -	617,650	106,590	73,750	797,990	90,598	888,588
LAST VOTE FOR 1866-67 - - -	578,500	142,455	65,430	786,385	106,480	892,865
NET DECREASE - - - £.	Increase. 39,150	35,865	Increase. 8,320	Increase. 11,605	15,882	4,277

—No. 12.—

MEDICINES AND MEDICAL STORES, &c.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
For Provisions and Stores of all kinds, including Issues from Naval and Victualling Depôts, for the several Naval Hospitals and Marine Infirmaries - - - -	38,064 - -	35,400 - -
For Medicines and Surgical Instruments - - - -	8,500 - -	8,500 - -
For the Subsistence and Care of Seamen at Sick Quarters and in Temporary Hospitals, and for other occasional Accommodation for the Sick:		
For the Fleet - - - - - £. 5,100		
For Coast Guard and Royal Naval Reserve 11,000	16,100 - -	15,100 - -
For the purpose of carrying out the Contagious Diseases Act of 1866, viz.:		
Completing additional Lock Wards at the Royal Albert Hospital, at Devonport; and for Repairs - - - - - £. 7,240		
Contributions for Lock Wards at the Out-Ports, and other Expenses - - - - 9,260	16,500 - -	15,500 - -
For freight of Medical Stores, Funerals of Seamen, and other Miscellaneous Disbursements for Medical Service -	1,500 - -	1,500 - -
£.	80,664 - -	76,000 - -
Abate,— <i>Medicines for Troop Ships, provided for under Vote No. 17</i>	{No amount is included this year in Vote No. 12 for this Service.}	336 - -
TOTAL - - - - £.	80,664 - -	76,664 - -

17

— No. 13. —

MARTIAL LAW AND LAW CHARGES.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
LEGAL DEPARTMENT:		
Advocate General of the Office of Lord High Admiral (in addition to Fees) - - - - -	13 6 8	13 6 8
Counsel and Judge Advocate for the affairs of the Admiralty and Navy (in addition to Fees) - - - - -	100 - -	100 - -
Solicitor for the Admiralty - - - - -	1,600 - -	1,600 - -
Solicitor for an Office, and assistance of Clerks - -	1,300 - -	1,300 - -
Fees to Counsel, and personal Charges of Law Agents employed by the Solicitor on Admiralty business - - - - - £.7,000 - -		
Expenses attendant on the Purchase of Property, and other legal proceedings connected with Naval business - - 4,000 13 4		
	11,000 13 4	12,000 13 4
£.	14,014 - -	15,014 - -
COURTS MARTIAL:		
Allowances to persons officiating at Courts Martial on Officers, Seamen, and Marines, Travelling Charges, and other Expenses attendant thereon - - - - -	1,500 - -	1,500 - -
NAVAL PRISON, LEWES:		
Governor,* from 350 L. to 400 L. per annum - - -	376 - -	370 17 6
Chaplain* - - - - -	200 - -	200 - -
Local Medical Practitioner - - - - -	100 - -	100 - -
Pay of Warders, Assistant Warders, Schoolmaster, Messengers, &c. - - - - -	1,326 - -	1,311 - -
Lodging Money to those of the above, unprovided with quarters - - - - -	164 - -	155 - -
Allowance in lieu of a House to the Chaplain - - -	50 - -	50 - -
Rates and Taxes - - - - -	30 - -	25 - -
Lighting the Prison with Gas - - - - -	50 - -	45 - -
Allowances for Clothing to Warders, &c. - - - -	75 - -	103 - -
Allowance to Roman Catholic Priest - - - - -	26 - -	26 - -
Fuel, Lights, &c. - - - - -	181 - -	181 - -
Postage, Advertisements, and other Contingencies - -	120 - -	120 2 6
Clothing for Prisoners - - - - -	160 - -	204 - -
£.	2,858 - -	2,891 - -

* In addition to Half Pay.

No. 13.—MARTIAL LAW AND LAW CHARGES—*continued.*

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
NAVAL PRISON, MALTA:		
For Salary of the Governor, Pay of Warders, and Contin- gent Expenses in connexion with the Naval Prison at	1,760 - -	—
Malta - - - - -		
CONVEYANCE OF PRISONERS:		
Expense of conveying Prisoners between Lewes Prison and	1,200 - -	1,200 - -
County Gaols, and Her Majesty's Ships - - -		

A B S T R A C T.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
LEGAL DEPARTMENT - - - - -	14,014 - -	15,014 - -
COURTS MARTIAL - - - - -	1,500 - -	1,500 - -
NAVAL PRISON, LEWES - - - - -	2,858 - -	2,891 - -
NAVAL PRISON, MALTA - - - - -	1,760 - -	—
CONVEYANCE OF PRISONERS - - - - -	1,200 - -	1,200 - -
TOTAL - - - £.	21,332 - -	20,605 - -

— No. 14. —

MISCELLANEOUS SERVICES.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
PILOTING AND TOWING HER MAJESTY'S SHIPS:		
For Pilotage of Her Majesty's Ships on Home and Foreign Stations; Half day-pay to Pilots, Travelling and other incidental Expenses in piloting and towing Ships - -	9,000 - -	9,000 - -
COMMANDERS-IN-CHIEF:		
For Furniture, Postage, Stationery, Wages of Attendants, and other Expenses - - - - -	4,000 - -	4,000 - -
PASSAGE MONEY AND CONVEYANCE OF OFFICERS, SEAMEN, AND MARINES:		
For the Passage and Travelling Expenses of Naval and Marine Officers proceeding to, and of Invalid Officers returning from, their Ships on Foreign Stations; and of Civil Officers proceeding to, and returning from, Service Abroad; also for the Conveyance of Seamen and Marines to and from their Ships or Divisions; and for the Passage and Conveyance of Invalids - - -	55,000 - -	{ 45,000 - - and 50 - - in Supply Estimate.
TELEGRAPHIC COMMUNICATIONS:		
For Electric Telegraph from the Admiralty to Somerset House; and to the several Dockyards, as per Contracts; also, for casual Telegraphic Communications, &c. - -	6,000 - -	6,400 - -
LOSSES BY SHIPWRECK:		
For Compensation to Officers, Seamen, &c. for Losses by Shipwreck or Action, pursuant to the recommendation of the Committee for Naval and Military Inquiry - -	1,500 - -	{ 1,500 - - and 50 - - in Supply Estimate.
SAILORS' HOMES:		
For Contributions in aid of Sailors' Homes in the Neighbourhood of Naval Establishments - - - - -	425 - -	425 - -
RELIGIOUS AND CHARITABLE INSTITUTIONS:		
For Contributions in aid of Religious and Charitable Institutions in the neighbourhood of Naval Establishments -	1,500 - -	2,000 - -
TRANSMISSION OF MONEY:		
For Per-centage paid to Banks for transmission of Money to the Naval Accountants at the Out-ports and other Home Establishments, to meet payments for the Naval Department - - - - -	1,500 - -	1,500 - -
WARNER LIGHT VESSEL:		
For Annual Payment to the Elder Brethren of the Trinity House for the maintenance of a Floating Light Vessel at the Warner - - - - -	370 - -	370 - -
Carried forward - - - £.	79,295 - -	70,295 - -

No. 14.—MISCELLANEOUS SERVICES—continued.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
Brought forward - - -	79,295 - -	70,295 - -
MEDALS:		
For Medals to Seamen and Marines as Rewards for Good Service and Distinguished Gallantry in Action - - -	100 - -	100 - -
PIRATES:		
For Rewards for Services against Pirates (under Act 13 & 14 Vict. c. 26); viz.:—		
	£. s. d.	
To Commander, Officers, and Crew of H. M. S. "Opossum," for services against Pirates in the China Seas, on 29th October and 12th November, 1864; 12th March, 2nd and 15th April, 24th and 26th June, and 16th and 17th October, 1865 - - -	1,000 - -	
To ditto, ditto, for services against Pirates, on the 11th and 14th February 1866 - - -	1,000 - -	
To Officers and Crew of H. M. S. "Leven," for services against Pirates on the 4th November 1865 - - -	200 - -	
	2,200 - -	1,350 - -
STAMPS, &c.:		
For Stamps on Contracts, and on Officers' Commissions and Appointments; Advertisements, Gazettes, Lists, &c.	4,000 - -	4,000 - -
HIRE OF VESSELS:		
For the occasional Hire of Steamers and other small Vessels - - -	200 - -	200 - -
ASSISTANCE TO HER MAJESTY'S SHIPS:		
For Assistance rendered to Her Majesty's Ships in Distress	500 - -	500 - -
DAMAGE DONE BY HER MAJESTY'S SHIPS:		
For Remuneration for Damage done by Her Majesty's Ships - - -	4,000 - -	4,000 - -
GRATUITIES FOR WOUNDS AND FOR SPECIAL SERVICES:		
For Gratuities for Wounds and Injuries received in the Service; to Persons on Retirement or Discharge from the Public Service, not entitled to Pension; Compassionate Allowances, and Gratuities for Special Services - - -	4,000 - -	3,500 - -
Carried forward - - - £.	94,295 - -	83,945 - -

No. 14.—MISCELLANEOUS SERVICES—*continued.*

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
Brought forward - - -	94,295 - -	83,945 - -
EXPENSE OF COMMITTEES :		
For Expenses connected with the Appointment of Committees to investigate or report on Matters relating to the Naval Department - - - - -	2,000 - -	2,000 - -
COMPENSATION FOR SEAMEN VOLUNTEERING FOR HER MAJESTY'S NAVY :		
For Compensation to the Owners of Merchant Vessels for Excess of Wages paid by them in providing Substitutes for Seamen who volunteer into Her Majesty's Navy (Act 16 & 17 Vict. c. 131) - - - - -	250 - -	250 - -
BOOKS AND STATIONERY :		
For Allowances for the purchase of Books and Stationery for Schools on board Her Majesty's Ships and Training Ships; and for Allowances to purchase Stationery for Captains and Paymasters of Her Majesty's Ships - - -	3,500 - -	3,500 - -
LOSS BY EXCHANGE, &c :		
For Net Loss by Exchange incurred from Payments made by Paymasters on the East India and China Station, &c.; and Discount on Bills drawn - - - - -	4,000 - -	4,000 - -
LODGING ALLOWANCES TO OFFICERS, &c., OF HER MAJESTY'S SHIPS :		
For Allowances for Lodging to Officers and Crews of Her Majesty's Ships detained on shore by Stress of Weather, or on Special Service - - - - -	4,000 - -	{ 4,000 - - and 50 - - in Suppl ^y Estimate.
SLAUGHTER HOUSES, PEMBROKE DOCK :		
For New Slaughter Houses at Pembroke Dock, to replace those at present situated on Admiralty property at that place - - - - - (A Re-vote)	500 - -	750 - -
GRAVING DOCK IN TABLE BAY :		
For Grant towards the Construction of a Graving Dock in Table Bay - - - - -	2,450 - -	—
IRON-CLAD SHIP FOR VICTORIA, NEW SOUTH WALES :		
For Moiety of a Contribution of 100,000 <i>l.</i> towards building an Iron-clad two-turreted Ship for the defence of the Colony of Victoria, New South Wales - - - - -	50,000 - -	—
CONTINGENCIES :		
For Freight of Specie; Wages of Interpreters; Conveyance by Sea of the Royal Household; clearing Ships of Ashes; and other small or unforeseen Expenses - - - - -	7,455 - -	7,455 - -
For details of Expenditure of Contingencies in 1865-66, see Appendix, No. 21, p. 167.)		
TOTAL - - - £.	168,450 - -	{ 105,800 - - and 150 - - in Supplementary Estimate.

— No. 15. —

HALF PAY, RESERVED HALF PAY, AND RETIREMENT TO OFFICERS OF THE NAVY
AND ROYAL MARINES.

Number unemployed on 1 Jan. 1867.	R A N K.	Rate of Half Pay or Retirement.		TOTAL of each Class. (366 Days.)	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
		Daily.	Annual.			
ACTIVE LIST.						
		£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
3	Admirals of Fleet - - - - -	3 7 -	1,222 15 -	3,678 6 -		
18	Admirals - - - - -	2 2 -	766 10 -	13,834 10 -		
21	Vice-Admirals - - - - -	1 12 6	593 2 6	12,489 15 -		
40	Rear-Admirals - - - - -	1 5 -	456 5 -	18,300 - -		
82					48,302 17 -	52,085 10 -
24	Captains - - - - -	- 14 6	264 12 6	6,368 8 -		
49	Ditto - - - - -	- 12 6	228 2 6	11,208 15 -		
107	Ditto - - - - -	- 10 6	191 12 6	20,560 1 -		
180					38,137 4 -	39,310 10 -
94	Commanders - - - - -	- 10 -	182 10 -	17,202 - -		
120	Ditto - - - - -	- 8 6	155 2 6	18,666 - -		
214					35,868 - -	35,843 - -
179	Lieutenants - - - - -	{ From 8 6 to - 4 - Average 5s. 2d. }	94 5 10	16,924 9 -	16,924 9 -	19,474 5 5
89	Staff Commanders and Masters - - - - -	{ From 15 6 to - 5 - Average 8s. 2d. }	149 - 10	13,301 1 -	13,301 1 -	11,442 15 -
4	Sub-Lieutenants - - - - -	- 2 6	45 12 6	183 - -	183 - -	228 2 6
1	Second Master - - - - -	- 2 6	45 12 6	45 15 -	45 15 -	45 12 6
29	Chaplains - - - - -	{ From 17 - to - 5 - Average 7s. 5d. }	135 7 1	3,936 - 6	3,936 - 6	5,085 13 4
2	Inspectors General of Hospitals - - - - -	1 17 6	684 7 6	1,372 10 -		
1	Ditto - ditto - - - - -	1 10 -	547 10 -	549 - -		
3	Deputy ditto - - - - -	1 1 -	383 5 -	1,152 18 -		
6					3,074 8 -	3,431 - -
77	Surgeons - - - - -	{ From 18 6 to - 11 - Average 14s. 1d. }	257 - 5	19,844 16 6	19,844 16 6	20,202 15 -
20	Assistant Surgeons - - - - -	{ From 10 - to - 6 - Average 7s. 2d. }	130 15 10	2,623 - -	2,623 - -	2,555 - -
2	Secretaries - - - - -	- 17 -	310 5 -	622 4 -		
	For Four Secretaries on Full Pay allowed } 5s. a day out of their Half-pay - }	- 5 -	91 5 -	366 - -	988 4 -	711 15 -
121	Paymasters - - - - -	{ From 14 - to - 5 - Average 9s. 3d. }	168 16 3	20,482 5 6		
	For 9 Paymasters on Full Pay as Secretaries, } allowed 5s. a day out of their Half-pay - }	- 5 -	91 5 -	823 10 -	21,305 15 6	18,560 5 -
6	Assistant Paymasters - - - - -	- 2 6	45 12 6	274 10 -	274 10 -	228 2 6
6	Naval Instructors - - - - -	{ From 10 - to - 3 - Average 6s. 10d. }	124 14 2	750 6 -	750 6 -	757 7 6
1	Inspector of Machinery - - - - -	- 10 -	182 10 -	183 - -	183 - -	419 15 -
32	Chief Engineers - - - - -	{ From 13 - to - 5 - Average 7s. 7d. }	138 7 11	4,440 13 6	4,440 13 6	4,478 11 3
1,049						
TOTAL ACTIVE LIST - - - £.				210,183 - -	214,860 - -	

No. 15.—HALF PAY, RESERVED HALF PAY, and RETIREMENT to OFFICERS of the NAVY and ROYAL MARINES—continued.

Number on 1 Jan. 1867.	RANK.	Rate of Half Pay or Retirement.		TOTAL of each Class, (366 Days.)	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
		Daily.	Annual.			
RESERVED LIST.						
(Under Her Majesty's Orders in Council of 25 June 1851 and 29 December 1853.)						
		£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
4	Admirals - - -	2 2 -	766 10 -	3,074 8 -		
3	Ditto - - - { In receipt of Retired Service Pensions -	1 12 6	593 2 6	1,784 5 -		
3	Vice-Admirals - -	1 12 6	593 2 6	1,784 5 -		
10					6,642 18 -	6,624 15 -
2	Admirals - - - - -	2 2 -	766 10 -	1,537 4 -		
28	Ditto - - - - -	1 5 -	456 5 -	12,810 - -		
30	Vice-Admirals - - - - -	1 5 -	456 5 -	13,725 - -		
38	Rear-Admirals - - - - -	1 5 -	456 5 -	17,385 - -	45,457 4 -	46,245 10 -
80	Captains - - - { Orders in Council, 25 June 1851, 30 January 1856, and 1 August 1860	From 16 9 to 10 6	305 13 9 191 12 6	18,011 15 6	18,011 15 6	18,190 13 9
78	Commanders - - - { Orders in Council, 25 June 1851, 30 January 1856, and 1 August 1860	From 12 9 to - 8 6	232 13 9 155 2 6	13,875 10 6	13,875 10 6	15,006 1 3
8	Lieutenants - - - - -	- 6 -	109 10 -	878 8 -		
1	Ditto - - - - -	- 4 -	73 - -	73 4 -	951 12 -	1,168 - -
9						
126	Staff Commanders and Masters - - -	From 15 6 to 5 -	282 17 6 91 5 -	15,189 - -	15,189 - -	14,399 15 -
	Secretary, Greenwich Hospital - - -	- 17 -	310 5 -	- - -	- - -	310 5 -
401	TOTAL RESERVED LIST - - -			£. 100,128 - -		101,945 - -
RETIRED LIST.						
(Under Admiralty Circular 31 August 1846, and Her Majesty's Orders in Council, 10 August 1840, 25 June 1851, 30 January 1856, 1 August 1860, 9 July 1864, 16 February 1866, 24 March 1866.)						
NAVAL OFFICERS.						
		£. s. d.	£. s. d.	£. s. d.		
3	Vice-Admirals { In receipt of Greenwich Hospital Pensions (under Orders in Council, 16 February 1866) - - -	1 12 6	593 2 6	1,784 5 -		
3	Rear ditto - - -	1 5 -	456 5 -	1,372 10 -	3,156 15 -	-
6	Admirals - - -	2 2 -	766 10 -	4,611 12 -		
5	Vice ditto - - - { Retired from Active Flag List (under Orders in Council, 24 March 1866)	1 12 6	593 2 6	2,973 15 -		
4	Rear ditto - - -	1 5 -	456 5 -	1,830 - -	9,415 7 -	-
15						
21	- - - - -	- - -	Carried forward - - -	£. 12,572 2 -		-

No. 15.—HALF PAY, RESERVED HALF PAY, and RETIREMENT to OFFICERS of the NAVY and ROYAL MARINES—*continued.*

Number on 1 Jan. 1867.	R A N K.	Rate of Half Pay or Retirement.		TOTAL of each Class. (366 Days.)	REQUIRED for the Service of the Year 1867-68.	LAST VOTE for the Financial Year 1866-67.
		Daily.	Annual.			
RETIRED LIST—continued.						
NAVAL OFFICERS—continued.		£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
21	- - - - -	- - -	- - -	Brought forward - - -	12,572 2 -	-
(Under Admiralty Circular, 31 August 1846, and Her Majesty's Orders in Council, 10 August 1840, 25 June 1851, 30 January 1856, 1 August 1860, 9 July 1864, 16 February 1866, and 24 March 1866.)—continued.						
25 15 16	Admirals - (under Order in Council, {	1 5 -	456 5 -	11,437 10 -		
	Ditto - {	1 - -	365 - -	5,490 - -		
	Vice ditto - { 7 May 1858) - - - }	1 - -	365 - -	5,856 - -		
56					22,783 10 -	24,546 5 -
32	Rear-Admirals {with Pay of Retired Cap- tains - - - - }	1 - -	365 - -	11,712 - -	11,712 - -	12,045 - -
18	Rear-Admirals { (under Orders in Council, 1 August 1860, and 9 July 1864) - - - }	1 5 -	456 5 -	8,235 - -	8,235 - -	5,931 5 -
1 143	Captains - { (under Orders in Council, 10 August 1840, 24 April 1847, 25 June 1851, and 30 January 1856) - - }	1 - - - 10 6	365 - - 191 12 6	366 - - 27,477 9 -		
64 7 1 1	Captains - { (under Orders in Council, 1 August 1860, 9 July 1864, and 24 March 1866) }	1 - - - 18 - - 16 - - 14 6	365 - - 328 10 - 292 - - 264 12 6	23,424 - - 2,305 16 - 292 16 - 265 7 -		
217					54,131 8 -	51,474 2 8
150	Captains, from Commanders' List (under Orders in Council, 1 August 1860, 9 July 1864 and 24 March 1866) - - - }	From 17 9 to - 10 -	323 18 9 182 10 - }	33,841 5 6	33,841 5 6	29,998 8 8
19	Captains, late Masters (under Orders in Council, 28 February 1855, and 22 Fe- bruary 1860) - - - - }	From 1 3 6 to - 13 -	428 17 6 237 5 - }	5,755 7 -	5,755 7 -	5,301 12 6
30	Commanders (under Orders in Council, 1 August 1860, and 9 July 1864) - - }	From 16 3 to 10 -	296 11 3 182 10 - }	6,501 1 6	6,501 1 6	3,964 16 2
98	Commanders (under Order in Council, 30 January 1816) - - - - }	- 8 6	155 2 6	15,243 18 -		
293 95 6	Ditto - { (under Orders in Council, 1 November 1830, and 9 July 1864) - - - - }	- 7 - - 6 - - 4 -	127 15 - 109 10 - 73 - -	37,533 6 - 10,431 - - 439 4 -		
492					63,647 8 -	68,455 15 -
236	Commanders, from Lieutenants' List (under Orders in Council, 1 August 1860, 9 July 1864, and 24 March 1866) - - }	From 14 6 to - 4 -	264 12 6 73 - - }	36,801 6 -	36,801 6 -	33,894 10 3
4 3 12	Commanders, late Masters (under Order in Council, 19 May 1846) - - - }	- 13 6	246 7 6	988 4 -		
19	Ditto - ditto - - - - }	- 12 6	228 2 6	686 5 -		
1	Ditto - ditto - - - - }	- 10 6	191 12 6	2,305 16 -	3,980 5 -	4,161 - -
	Ditto - ditto - (under Order in Council, 28 February 1855) - - }	- 13 -	237 5 -	237 18 -	237 18 -	237 5 -
1,291	- - - - -	- - -	Carried forward - - -	£.	260,198 11 -	240,010 6 3

No. 15.—HALF PAY, RESERVED HALF PAY, and RETIREMENT to OFFICERS of the NAVY and ROYAL MARINES—*continued.*

Number on 1 Jan. 1867.	R A N K.	Rate of Half Pay or Retirement.		TOTAL of each Class. (366 Days.)	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
		Daily.	Annual.			
	RETIRED LIST—continued.					
	MARINE OFFICERS:	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
	Unattached Pay:					
	Artillery:					
1	General - - - - -	- - -	900 - -	900 - -		
1	Lieutenant-General - - - - -	2 - -	730 - -	732 - -		
1	Major-General - - - - -	2 - -	730 - -	732 - -		
	Light Infantry:					
1	General - - - - -	- - -	900 - -	900 - -		
1	Ditto - - - - -	1 18 6	702 12 6	704 11 -		
3	Lieutenant-Generals - - - - -	- - -	900 - -	2,700 - -		
5	Major-Generals - - - - -	1 18 6	702 12 6	3,522 15 -		
13					10,191 6 -	8,040 10 -
	Retired Full Pay:					
1	Lieutenant-General - - - - -	2 5 -	821 5 -	823 10 -		
1	Major-General - - - - -	2 - -	730 - -	732 - -		
13	Ditto - - - - -	1 18 6	702 12 6	9,159 3 -		
6	Ditto - - - - -	- - -	400 - -	2,400 - -		
4	Ditto - - - - -	1 5 -	456 5 -	1,830 - -		
2	Ditto - - - - -	1 - -	365 - -	732 - -		
2	Ditto - - - - -	- 17 -	310 5 -	622 4 -		
3	Colonels - - - - -	1 - -	365 - -	1,098 - -		
13	Ditto - - - - -	- 17 -	310 5 -	4,044 6 -		
1	Ditto - - - - -	- 16 -	292 - -	292 16 -		
1	Ditto - - - - -	- 13 7	247 17 11	248 11 6		
5	Lieutenant-Colonels - - - - -	- 13 7	247 17 11	1,242 17 6		
1	Ditto - - - - -	- 12 6	228 2 6	228 15 -		
1	Major - - - - -	- 12 1	220 10 5	221 2 6		
28	Majors - - - - -	- 11 7	211 7 11	5,935 6 -		
8	Ditto - - - - -	- 10 6	191 12 6	1,537 4 -		
2	First Lieutenants - - - - -	- 7 6	136 17 6	274 10 -		
92					31,422 5 6	32,806 - 10
	Reserved and Retired Half Pay:					
1	Colonel - - - - -	- 14 6	264 12 6	265 7 -		
1	Lieutenant-Colonel - - - - -	- 9 6	173 7 6	173 17 -		
2	Majors - - - - -	- 8 4	152 1 8	305 - -		
1	Ditto - - - - -	- 7 4	133 16 8	134 4 -		
5	Ditto - - - - -	- 7 -	127 15 -	640 10 -		
9	Captains - - - - -	- 7 4	133 16 8	1,207 16 -		
37	Ditto (one of these in Holy Orders) - - - - -	- 7 -	127 15 -	4,739 14 -		
4	Quartermasters (under Order in Council of 25 June 1857) - - - - -	- 10 -	182 10 -	732 - -		
5	First Lieutenants - - - - -	- 4 8	85 3 4	427 - -		
44	Ditto - - - - -	- 4 6	82 2 6	3,623 17 6		
2	Ditto - - - - -	- 4 -	73 - -	146 8 -		
1	Second Lieutenant - - - - -	- 3 2	57 15 10	57 19 -		
42	Ditto (one of these in Holy Orders) - - - - -	- 3 -	54 15 -	2,305 16 -		
154					14,759 8 6	15,652 9 2
259	TOTAL RETIRED LIST of MARINE OFFICERS - - - - -			£.	56,373 - -	56,499 - -

On Half Pay.		ABSTRACT.	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
1 Jan. 1867.	1 Jan. 1866.			
1,049	1,059	ACTIVE LIST of NAVAL OFFICERS - - - - -	£. s. d. 210,183 - -	£. s. d. 214,860 - -
401	410	RESERVED LIST of - - Ditto - - - - -	100,128 - -	101,945 - -
1,734	1,714	RETIRED LIST of - - Ditto - - - - -	338,253 - -	315,748 - -
259	275	Ditto - - - of MARINE OFFICERS - - - - -	56,373 - -	* 12,656 - -
3,443	3,458	TOTAL - - - - -	£. 704,937 - -	689,052 - -
				and * 12,656 - - Sup. Estimate.

No. 16 (SECTION I)—MILITARY PENSIONS AND ALLOWANCES—*continued.*

PENSIONS FOR GOOD AND MERITORIOUS SERVICES— <i>continued.</i>				REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
				£. s. d.	£. s. d.
Brought forward - - -				4,050 - -	6,150 - -
Pensions Granted within the Year:					
FLAG OFFICER.					
Admiral Sir W. J. HOPE JOHNSTONE, K.C.B. - - - - -				300 - -	
Entered the Service - - - - -	29 June -	1811			
Lieutenant - - - - -	2 May -	1818			
Commander - - - - -	9 September -	1820			
Captain - - - - -	21 October -	1828			
Rear-Admiral - - - - -	22 April -	1853			
Vice-Admiral - - - - -	4 February -	1858			
Admiral - - - - -	24 September -	1863			
Was Midshipman of the "Venerable" in 1812; actively co-operated with the Spanish patriots, and was present at the reduction of Lequeytio de Castro, on the north coast of Spain. Was Captain of the "Agincourt," bearing the flag of Sir Thomas Cochrane, in the East Indies, from 1843 to 1847; and commanded the rocket and field pieces at the capture and destruction of the fort and batteries in the River Bruné, Borneo, on the 8th of July 1846. Was Commander-in-Chief on the Brazils Station from May 1854 to October 1857, and at Sheerness from July 1860 to July 1863. Has served afloat as a Commissioned Officer about nineteen years.					
CAPTAINS.					
Captain WILLIAM KING HALL, C.B. - - - - -				150 - -	
Entered the Service - - - - -	22 September -	1829			
Lieutenant - - - - -	28 July -	1841			
Commander - - - - -	21 March -	1848			
Captain - - - - -	6 June -	1853			
Was Mate of the "Benbow" in 1840, on the coast of Syria; commanded her launch at the attack on Tortosa, and was also at the bombardment of St. Jean d'Acre. Was specially promoted to the rank of Commander in 1848, for his services in the "Growler," employed on the African Emigration Service. He was employed in the "Styx" at the Cape of Good Hope, and was also specially promoted to the rank of Captain in 1853 for valuable services rendered during the Kaffir war. Commanded the "Bulldog" in the Baltic in 1854, and was at Bomarsund. Also the "Exmouth" at Sweaborg, on the 9th and 10th August 1855. Was in command of the "Calcutta" flagship in China, during 1856, 1857, and 1858. Was engaged in the capture of a portion of the city of Canton, 29th October 1856, and again in December 1857, when Sir H. Seymour commended him for his untiring zeal and energy. Captain Hall also received high praise for his services at the capture of the Peiho Forts in May 1858. Is now Captain Superintendent of Sheerness Dockyard; he has served afloat as a Commissioned Officer upwards of twenty-two years.					
Captain THOMAS WILSON - - - - -				150 - -	
Entered the Service - - - - -	8 January -	1828			
Lieutenant - - - - -	9 May -	1839			
Commander - - - - -	20 September -	1843			
Captain - - - - -	12 August -	1853			
Was Lieutenant of the "Blenheim" from January 1840 to March 1843, and shared in most of the operations in China during that period. Commanded the "Blenheim's" seamen at the assault and capture of the forts and batteries at Chuenpee on the 7th January 1841. Was Captain of the "Winchester" in the East Indies and China, from 1854 to 1857, and was highly recommended for his valuable services in the attack on the defences of Canton in October 1856. Is now Captain Superintendent of Greenwich Hospital. Has been actively employed afloat as a Commissioned Officer about fourteen years.					
Carried forward - - - £.				4,650 - -	6,150 - -

No. 16 (SECTION 1)—MILITARY PENSIONS AND ALLOWANCES—*continued.*

						REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
						£. s. d.	£. s. d.
PENSIONS FOR GOOD AND MERITORIOUS SERVICES— <i>continued.</i>							
Brought forward - - -						4,650 - -	6,150 - -
Pensions Granted within the Year— <i>continued.</i>							
CAPTAINS— <i>continued.</i>							
Captain JAMES FRANCIS BALLARD WAINWRIGHT - - - - -						150 - -	
Entered the Service - - - - 10 October 1832							
Lieutenant - - - - 22 December 1841							
Commander - - - - 21 December 1849							
Captain - - - - 2 November 1853							
Received his Lieutenant's commission for passing a very creditable examination at the Royal Naval College.							
As Commander of the "Winchester" in 1852 was honourably mentioned for his gallant conduct at the storming of two forts in the vicinity of Prome, Burmah; and in 1853 was reported for his efficient services against pirates in the Chinese waters.							
Employed as Naval Officer in charge of the Naval Establishment at Bermuda since September 1864.							
Has served afloat as Commissioned Officer nearly seventeen years.							
Captain JAMES CHARLES PREVOST - - - - -						150 - -	
Entered the Service - - - - 7 August - 1823							
Lieutenant - - - - 10 December 1835							
Commander - - - - 22 October 1844							
Captain - - - - 17 August - 1854							
When in command of the "Satellite" in the Pacific in 1858, he afforded valuable assistance during the disturbances in British Columbia.							
Has been in charge of the Naval Establishment at Gibraltar since January 1865.							
Has served afloat as a Commissioned Officer upwards of twenty-three years.							
Captain Sir WILLIAM SALTONSTALL WISEMAN, Bart., C.B. - - - - -						150 - -	
Entered the Service - - - - 6 September 1827							
Lieutenant - - - - 28 June - 1838							
Commander - - - - 7 February 1846							
Captain - - - - 17 April - 1854							
Has been in command of the "Curaçoa," on the Australian Station since May 1863.							
Was in New Zealand, and commanded the Naval Force engaged in co-operation with the army on the 20th November 1863, in the successful attack on the Rebel Maori position at Rangariri.							
Conducted an engagement on the 29th April 1864 against the native tribes at Pakehinahina, and has received the thanks of the House of Representatives, and the Legislative Council of New Zealand, for his services.							
Has served afloat as a Commissioned Officer about twenty-four years.							
Carried forward - - - £.						5,100 - -	6,150 - -

No. 16 (SECTION 1)—MILITARY PENSIONS AND ALLOWANCES—*continued.*

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
PENSIONS FOR GOOD AND MERITORIOUS SERVICES— <i>continued.</i>		
Brought forward - - -	5,100 - -	6,150 - -
Pensions Granted within the Year— <i>continued.</i>		
CAPTAINS— <i>continued.</i>		
Captain JAMES AYLMER PAYNTER - - - - -	150 - -	
Entered the Service - - - - 1 January - 1826		
Lieutenant - - - - 23 November 1841		
Commander - - - - 8 July - 1846		
Captain - - - - 17 April - 1854		
Was Midshipman of the "Genoa" at the battle of Navarino, 1827.		
Served as Gunnery Lieutenant of the "Agincourt," Flag-ship in the East Indies in 1845 and 1846; commanded the Rocket Brigade at the destruction of the Piratical Settlement of Malloodo Bay, Borneo; and for his subsequent services in the operations in the River Bruné, Borneo, 8th July 1846, where he was in command of the rockets and field pieces, he was specially promoted to the rank of Commander		
Is now in command of the "Donegal," Coast-guard Ship.		
Has been actively employed as a Commissioned Officer about eighteen years.		
Captain ARTHUR CUMMING - - - - -	150 - -	
Entered the Service - - - - 8 August - 1832		
Lieutenant - - - - 28 September 1840		
Commander - - - - 9 November 1846		
Captain - - - - 19 April - 1854		
Was Mate of the "Cyclops" during the operations on the coast of Syria in 1840, and was specially promoted for his services at the taking of Sidon, where he led the Turkish troops to the assault.		
Commanded the "Conflict" in the Baltic in 1854; and was praised for his judicious conduct on the occasion of the surrender of the town of Libaco in June 1854.		
Was in command of the "Glatton" floating battery in the Mediterranean in 1855.		
Has been actively employed as a Commissioned Officer about fourteen years.		
Carried forward - - - £.	5,400 - -	6,150 - -

No. 16 (SECTION 1)—MILITARY PENSIONS AND ALLOWANCES—*continued.*

						REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
						£. s. d.	£. s. d.
PENSIONS FOR GOOD AND MERITORIOUS SERVICES— <i>continued.</i>							
Brought forward - - -						5,400 - -	6,150 - -
Pensions Granted within the Year— <i>continued.</i>							
CAPTAINS— <i>continued.</i>							
Captain EDWARD TATHAM	-	-	-	-	-	150 - -	
Entered the Service	-	-	-	-	March - 1825		
Lieutenant	-	-	-	-	12 January 1838		
Commander	-	-	-	-	6 June - 1846		
Captain	-	-	-	-	20 August 1854		
Whilst serving as Lieutenant on board the "Columbine" in 1839 was reported to have shown great judgment and zeal during the capture and destruction of two slave ships. Commanded the "Fury" in the Mediterranean from 1851 to 1854, and was reported for his zealous and active proceedings in reconnoitring Sebastopol. Was employed as resident agent of transports at Marseilles in 1855, and was complimented by the French Government for his valuable services in that capacity. Is now in command of the "Bellerophon," attached to the Channel Squadron. Has served afloat as a Commissioned Officer about twenty-four years.							
Captain HENRY CHARLES OTTER	-	-	-	-	-	150 - -	
Entered the Service	-	-	-	-	12 January 1822		
Lieutenant	-	-	-	-	5 December 1831		
Commander	-	-	-	-	26 August - 1844		
Captain	-	-	-	-	8 September 1854		
Has performed valuable services as a Surveying Officer. Commanded the "Alban," in the Baltic, in 1854, and was mentioned with high praise for his services during a reconnoitre of the Abo Islands. In 1855, was Captain of the "Firefly," also in the Baltic; was specially reported for his proceedings before Brandon, the sea-port of Wasa, and for his exertions and ability in navigating the Gulf of Bothnia. Has been serving afloat as a Commissioned Officer about thirty years.							
Captain JOHN B. DICKSON	-	-	-	-	-	150 - -	
Entered the Service	-	-	-	-	7 February 1828		
Lieutenant	-	-	-	-	18 October 1839		
Commander	-	-	-	-	23 December 1847		
Captain	-	-	-	-	16 May - 1854		
Was a Lieutenant in the "Melville," at the capture of the forts of the Bocca Tigris, and the operations against Canton, in 1841. Served as Commander of the "Britannia," bearing the flag of Vice Admiral Sir James W. Deans Dundas, Commander in Chief in the Mediterranean; and was mentioned with high praise for his services at the attack on Odessa, in April 1854, on which occasion he had charge of the rocket boats. Has been actively employed as a Commissioned Officer about twenty-one years.							
Carried forward - - - £.						5,850 - -	6,150 - -

No. 16 (SECTION 1)—MILITARY PENSIONS AND ALLOWANCES—*continued.*

				REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
				£. s. d.	£. s. d.
PENSIONS FOR GOOD AND MERITORIOUS SERVICES— <i>continued.</i>					
Brought forward - - -				5,850 - -	6,150 - -
Pensions Granted within the Year— <i>continued.</i>					
MARINE OFFICERS.					
Colonel Commandant JOSEPH OATES TRAVERS, C.B. (since promoted) - - -					
2nd Lieutenant - - -	10 September -	1831			
1st Lieutenant - - -	10 July -	1837			
Captain - - -	27 December -	1847			
Brevet-Major - - -	13 April -	1858			
Lieutenant-Colonel - -	8 September -	1858			
Assistant Adjutant General -	16 December -	1859			
Colonel 2nd Commandant -	29 May -	1863			
Colonel Commandant -	11 March -	1865			
Battalion North Coast of Spain; Coast of Syria; Baltic; bombardment of Sweaborg; capture of Canton; affair at the White Cloud Mountains (contused wound of the chest); Assistant Quartermaster-General to the troops at Canton from 1858 to 1860; operations in the North of China; storming and capture of Takū Forts (slightly wounded), and subsequent operations. (Gazetted 5th March 1858, and 6th November 1860.)					
Colonel Commandant GEORGE GARDINER ALEXANDER, C.B. - - - -				150 - -	
2nd Lieutenant - - -	14 August -	1838			
1st Lieutenant - - -	17 June -	1842			
Captain - - -	19 January -	1852			
Brevet-Major - - -	12 December -	1854			
Brevet Lieutenant-Colonel -	2 November -	1855			
Lieutenant-Colonel - -	27 March -	1862			
Colonel 2nd Commandant -	23 March -	1863			
Colonel Commandant -	28 November -	1865			
Operations at Yang-tse-kiang; capture of Bouri, and operations on coast of Borneo; Baltic fleet in 1854; Crimea; served with the siege train in the trenches before Sebastopol, and took part in the two last bombardments; capture of Kimburn.					
Colonel Commandant HAYES MARRIOTT - - - - -				150 - -	
2nd Lieutenant - - -	11 October -	1833			
1st Lieutenant - - -	16 June -	1838			
Captain - - -	17 May -	1848			
Brevet Major - - -	12 December -	1854			
Lieutenant-Colonel - -	13 July -	1860			
Colonel 2nd Commandant -	5 November -	1864			
Colonel Commandant -	21 November -	1865			
Operations in China, in 1841-42; capture of Chusan, Bogue Forts, &c. &c., and capitulation of Canton. Frequently mentioned in despatches. Black Sea fleet; action at Redout Kaleh; brigade in Crimea; action of Balaklava, and expeditions to Kertch and Kimburn.					
				£. 6,150 - -	6,150 - -

No. 16 (SECTION 1)—MILITARY PENSIONS AND ALLOWANCES—*continued.*

		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
PENSIONS FOR CONSPICUOUS BRAVERY:			
The Pensions to Warrant and Petty Officers, Seamen, and Marines, who have received the Decoration of the "Victoria Cross" for the "Merit of Conspicuous Bravery," for the year 1866-67, amounted to - - - -		£. s. d. 200 - -	£. s. d. 200 - -
Abate,—Amount of Pensions ceased between the 1st December 1865 and 30th November 1866 - - - -		10 - -	
£.		190 - -	
Add,—Pensions Granted within the Year:		nil.	
Number on Pension, 19.		190 - -	200 - -
The names of the Pensioners were given on the Navy Estimates for the years			
1858-59 - - - - p. 99	1864-65 - - - - p. 82		
1862-63 - - - - 84	1865-66 - - - - 90		
1863-64 - - - - 75	1866-67 - - - - 113		
FLAG OFFICERS' RETIRED SERVICE PENSIONS:			
Flag Officers on Reserved Half-pay in receipt of Retired Service Pensions, granted in pursuance of Her Majesty's Order in Council, 25 June 1851, viz.:			
Admiral Sir Henry Prescott, K.C.B. - - - -		150 - -	150 - -
" Francis Erskine Loch - - - -		150 - -	150 - -
" Sir Edward Collier, K.C.B. - - - -		150 - -	150 - -
" William Walpole - - - -		150 - -	150 - -
" Sir George Robert Lambert, G.C.B. - - - -		150 - -	150 - -
" Thomas Bennett - - - -		150 - -	150 - -
" Henry Smith, C.B. - - - -		150 - -	150 - -
Vice-Admiral Michael Quin - - - -		150 - -	150 - -
" John Jervis Tucker - - - -		150 - -	150 - -
" Frederick Bullock - - - -		150 - -	150 - -
£.		1,500 - -	1,500 - -
COMMISSIONED AND WARRANT OFFICERS:			
For Pensions to Commissioned and Warrant Officers, &c., as voted in the Estimates for 1866-67, amounted to - - - -		38,546 - -	38,546 - -
Abate,—Amount of Pensions ceased between the 1st December 1865 and the 30th November 1866 - - - -		2,369 18 9	
£.		36,176 1 3	
Add,—Pensions granted between 1 December 1865 and 30 November 1866; viz.:			
Commander W. A. de Vesci Brownlow, for wounds received by him at Simonisaki, on 6 September 1864 - - - -		91 5 -	
Rear-Admiral Thomas Fisher, loss of sight, occasioned by the severity of the weather when serving in the Baltic - - - -		150 - -	
Staff-Commander W. J. W. Burney, injuries received by him when serving in the Coast Guard - - - -		73 - -	
Sub-Lieutenant C. L. Rooke, in consideration of the injuries he received by falling from the topmast rigging of H.M.S. "Orlando," in January 1864 - - - -		45 12 6	
Commander Geo. G. Duff, for wounds received by him when attacking a rebel Maori position at Tauranga, in New Zealand, 29 April 1864 (for two years) - - - -		91 5 -	
Captain James Rawstorne, for injuries he received when serving in H.M.S. "Agincourt," in January 1843 - - - -		100 - -	
Commander Charles Compton Rising, for wounds he received when boarding an Arab Dhow at Zanzibar - - - -		100 - -	
To Four Gunners, Eight Boatswains, Seven Carpenters, and Nine Engineers, varying from 20 l. to 100 l. - - - -		1,988 16 3	
£.		38,811 - -	38,546 - -
Number of Pensioners of each Class paid out of the above sum:			
Commissioned Officers.	Flag Officer - - - 1	Royal Marines.	Lieutenant-Colonel - 1
	Captains - - - 14		Captains - - - 5
	Commanders - - - 21		Lieutenants - - - 9
	Lieutenants - - - 46	Warrant Officers.	Gunners - - - 126
	Staff Commander - 1		Boatswains - - - 110
	Masters - - - 9		Carpenters - - - 122
	Second Masters - 4		Naval Cadet - - - 1
	Sub-Lieut. and Mate 2	Engineers Cooks	Engineers - - - 45
	Chaplain - - - 1		Cooks - - - 48
	Surgeon - - - 1		
	Paymasters - - - 2		
TOTAL - - -			569

No. 16 (SECTION 1)--MILITARY PENSIONS AND ALLOWANCES--*continued.*

		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
		£. s. d.	£. s. d.
WIDOWS AND RELATIVES OF OFFICERS SLAIN, &c.:			
The Pensions to the Widows and Relatives of Officers slain, drowned, &c., as voted in the Estimates for 1866-67, amounted to - - - - -		10,718 - -	10,718 - -
Abate,—Amount of Pensions ceased between the 1st December 1865 and 30th November 1866 - - - - -		215 - -	
		£. 10,503 - -	
Add,—Pensions granted between the 1st December 1865 and 30th November 1866, viz.:—			
Miss Anne Dinnen	{ Sisters of Mr. John Dinnen, Inspector of steam machinery afloat, who lost his life by being run over in the street when leaving the Admiralty Office, where he had been engaged - - - - -	45 - -	
Miss Caroline Dinnen		45 - -	
Widow of Mr. Thomas Bone, Carpenter - - - - -		30 - -	
Widow of Mr. William Elliott, alias J. Budd, 2nd Class Boatswain - - -		30 - -	
Widow of Mr. William Long, Master - - - - -		65 - -	
		£. 10,718 - -	10,718 - -
Number of Pensioners of each Class paid out of the above sum:			
To Widows, &c. of	Flag Officers - 4	Captains, R.M. - 4	
	Captains - 15	Inspectors of steam machinery - 2	
	Commanders - 9	Engineers (including Assistant Engineers) - 19	
	Lieutenants - 19	Warrant Officers - 76	
	Staff Commander 1	Master of Transport - 1	
	Masters - 13	Ice Masters - 2	
	Acting Masters - 2	Pilots and others - 15	
	Second Masters - 3		
	Chaplain - 1		
	Medical Officers - 11		
	Paymasters - 6		
	Lieut.-Colonel, R.M. 1		
		TOTAL - - - 204	
WIDOWS OF NAVAL OFFICERS:			
For Pensions to Widows of Flag Officers, Captains, Commanders, Staff Commanders, Secretaries, Lieutenants, Masters, Second Masters, Chaplains, Naval Instructors, Engineers, and Warrant Officers - - - - -		128,780 - -	130,465 - -
For Pensions to Widows of Medical Officers and Paymasters - - - - -		25,249 - -	24,625 - -
		£. 154,029 - -	155,090 - -
Total Number of Pensioners of each Class paid out of the above sum:			
To Widows of	Flag Officers - 126	Naval Instructors - 6	
	Captains - 236	Engineers (including Assistant Engineers) - 35	
	Commanders - 476	Warrant Officers - 681	
	Staff Commanders 14	Medical Officers - 310	
	Secretaries - 5	Paymasters - 260	
	Lieutenants - 656		
	Masters - 206		
	Second Master - 1		
	Chaplains - 9		
		TOTAL - - - 3,021	

No. 16. (SECTION 1)—MILITARY PENSIONS AND ALLOWANCES—*continued.*

				REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
				£. s. d.	£. s. d.
WIDOWS OF MARINE OFFICERS:					
Pensions to the Widows of General Officers, Colonels, Lieutenant-Colonels, Captains, Lieutenants, Surgeons, and Assistant Surgeons - - - - £.				11,534 - -	11,470 - -
Number of Pensioners of each Class paid out of the above sum:					
To Widows of -	General Officers	- 14	Surgeon	- - 1	
	Colonels	- - 9	Assistant Surgeons	5	
	Lieut.-Colonels	- 13			
	Captains	- - 75	TOTAL	- - 225	
	Lieutenants	- - 108			
COMPASSIONATE LIST:					
Allowances to the Children of Naval and Medical Officers who may be placed on the Compassionate List - - - - - £.				15,500 - -	15,500 - -
PENSIONS TO OLD AND DISABLED COMMISSIONED OFFICERS: (Originally paid out of the Funds of Greenwich Hospital, under Act 46 Geo. 3, Cap. 100, Sec. 1 (1806).)					
Pensions to Commissioned Officers on account of Age, Infirmary, or Wounds, and not provided for in Greenwich Hospital, viz. :—					
			£. s. d.		
10 Captains, at 80 l. a year each	- - - - -		800 - -		
15 Commanders, at 65 l. ditto	- - - - -		975 - -		
50 Lieutenants, at 50 l. ditto	- - - - -		2,500 - -		
				4,275 - -	4,270 - -
15 Staff Commanders and Masters, at 50 l. each a-year	- - - - -			750 - -	750 - -
(Under Order in Council, dated 11 June 1863.)					
			£.	5,025 - -	5,020 - -
NAVAL PENSIONS AND GRATUITIES TO SEAMEN AND MARINES:					
For Pensions to Petty Officers, Seamen and Marines, for Service, or for Wounds or Hurts received in the Service, not provided for in Greenwich Hospital, varying from 4 l. to 60 l. a year :—					
9,027 Petty Officers and Seamen (including 152 Short-Service Pensions)	- - - - -		£. s. d.		
5,720 Marines	- - - - -		179,601 - -		
			94,899 - -		
				274,500 - -*	274,500 - -
To provide for increased rates of Pensions; for new admissions on the list in place of Pensioners deceased; and for arrears to Pensioners serving afloat				8,000 - -	8,000 - -
For long Service Medal Gratuities to Petty Officers on Pension; and for Gratuities to Seamen and Marines invalided from or injured in the Service, not entitled to Pension				2,500 - -	2,000 - -
For Annuities to Serjeants of Marines, for distinguished or meritorious Services, in addition to their Pensions				210 - -	210 - -
			£.	285,210 - -	284,710 - -
ABSTRACT.					
PENSIONS FOR GOOD AND MERITORIOUS SERVICES				6,150 - -	6,150 - -
FOR CONSPICUOUS BRAVERY				190 - -	200 - -
FLAG OFFICERS' RETIRED SERVICE PENSIONS				1,500 - -	1,500 - -
PENSIONS TO COMMISSIONED AND WARRANT OFFICERS				38,811 - -	38,546 - -
TO WIDOWS AND RELATIVES OF OFFICERS SLAIN, &c.				10,718 - -	10,718 - -
TO WIDOWS OF NAVAL OFFICERS				154,029 - -	155,090 - -
TO WIDOWS OF MARINE OFFICERS				11,534 - -	11,470 - -
ALLOWANCES ON THE COMPASSIONATE LIST				15,500 - -	15,500 - -
PENSIONS TO OLD AND DISABLED COMMISSIONED OFFICERS				5,025 - -	5,020 - -
NAVAL PENSIONS TO SEAMEN AND MARINES				285,210 - -	284,710 - -
TOTAL - - - £.				528,667 - -	528,904 - -

* By the 51st Clause of Act 28 & 29 Vict. c. 89, it is directed that a sum of 15 l. per head on the number of men by which the average number of the inmates of Greenwich Hospital during the year falls short of 1,400—the average supported from the Hospital property prior to the passing of that Act—is to be paid into the Exchequer to the credit of the Consolidated Fund, and which it is estimated will amount in 1867–68 to 15,000 l.

No. 16 (SECTION No. 2).—CIVIL PENSIONS AND ALLOWANCES.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
For SUPERANNUATIONS and PENSIONS granted to Persons formerly employed in the Civil Establishments of the Navy, as shown in the Estimates for 1866/67, amounting to - - - - -	176,327 - -	176,327 - -
Abate,—Amount of Pensions ceased between the 1st December 1865 and the 30th November 1866 - - - - -	10,951 17 7	
£.	165,375 2 5	
Add,—Pensions granted between the 1st December 1865 and the 30th November 1866.		

ON SUPERANNUATION:

		SERVICE.		PENSIONS.		
		Years.	Total.			
		Yrs. Mths.	Yrs. Mths.	£.	s.	d.
ADMIRALTY:						
Henry C. Pennell, Clerk	- - - - -	-	13 6	88	16	8
Walter Drummond, Clerk	- - - - -	-	18 10	132	-	-
Edward C. Warren, Clerk	- - - - -	-	41 4	400	-	-
William James, Messenger and Hall Porter	- - - - -	-	40 5	105	-	-
Robert George Hull, Messenger and Lamplighter	- - - - -	-	11 10	18	9	5
ROYAL NAVAL COLLEGE:						
H. W. Jeans, Mathematical Master	- - - - -	-	40 7	378	6	8
Mary A. Kendall, Matron	- - - - -	-	17 1	30	-	-
DOCKYARDS, &c.:						
DEPTFORD:						
John Skelton, Schoolmaster	- - - - -	-	19 6	53	6	8
WOOLWICH:						
George Turner, Master Shipwright	{ On Day Pay	12 9				
	{ On Salary -	32 10				
			45 7	500	-	-
Frederick Dutton, Clerk	- - - - -	-	24 4	120	-	-
Daniel Harding, jun., Foreman of the Yard	{ On Day Pay	16 5				
	{ On Salary -	24 8				
			41 1	166	13	4
Richard Guest, Leading Man of Storehouses	{ On Day Pay	31 -				
	{ On Salary -	10 -				
			41 -	56	13	4
CHATHAM:						
The Rev. A. Fielding, M.A., Chaplain	- - - - -	-	14 5	96	16	8
SHEERNESS:						
William Moody, Master Shipwright	{ On Day Pay	14 10				
	{ On Salary -	26 6				
			41 4	455	13	4
James H. Row, Timber Inspector	{ On Day Pay	24 9				
	{ On Salary -	16 10				
			41 7	224	-	-
John Venning, Established Master Smith	{ On Day Pay	7 9				
	{ On Salary -	31 4				
			39 1	162	10	-
James Wright, Foreman of Joiners	{ On Day Pay	16 4				
	{ On Salary -	6 11				
			23 3	69	-	-
Carried forward - - - £.				3,057	6	1
				165,375	2	5
				176,327	-	-

NO. 16 (SECTION NO. 2).—CIVIL PENSIONS AND ALLOWANCES—continued.

Pensions granted between the 1st December 1865 and the 30th November 1866—continued.						REQUIRED for the Service of the Year 1867-68.	LAST VOTE for the Financial Year 1866-67.
ON SUPERANNUATION—continued.							
SERVICE.						PENSIONS.	
Years.							
Total.							
Yrs. Mths.						£. s. d.	£. s. d.
DOCKYARDS, &c.—continued.							
Brought forward - - -						3,057 6 1	165,375 2 5
PORTSMOUTH:							
Edward Thomas Burr, Storekeeper - - -						669 - -	
Henry Hardin, 2nd Foreman of { On Day Pay 25 10							
Smiths - - - - - { On Salary - 4 6						62 10 -	
DEVONPORT:							
The Rev. John Briggs, B.A., Chaplain - - -						162 14 6	
Thomas Frazer, M.D., Staff Surgeon - - -						85 10 10	
Thomas Jordan, Assistant Foreman, Director of { Works Department - - - - - }						50 - -	
HALIFAX YARD:							
J. N. Macgregor, Storekeeper - - - - -						326 13 4	
CAPE OF GOOD HOPE NAVAL YARD:							
William Sayers, Storeporter { On Day Pay 20 0							
{ On Salary - 14 4						65 6 8	
TRINCOMALIE NAVAL YARD:							
Isaac Crabbe, Chief Clerk and Foreman of Ship-} wrights - - - - - }						368 - -	
ROYAL VICTORIA VICTUALLING YARD:							
James Arthur, Leading man of { On Day Pay 25 11							
Storehouses - - - - - { On Salary - 9 3						47 5 -	
ROYAL WILLIAM VICTUALLING YARD:							
Samuel Triscott, Storekeeper (since deceased) - - -						600 - -	
HALIFAX VICTUALLING YARD:							
C. J. Hill, Clerk - - - { On Day Pay 8 6							
{ On Salary - 15 5						125 - -	
PLYMOUTH HOSPITAL:							
The Rev. W. R. Payne, M.A., Chaplain - - -						163 6 8	
215 Artificers, &c., at Pensions varying from 5 l. 17 s. 4 d. } to 62 l. - - - - - }						£. 5,782 13 1	
						5,633 11 2	11,416 4 3
REDUNDANT LIST:							
JAMAICA NAVAL YARD:							
William M. Carrington, Clerk in Charge - - -						191 13 4	191 13 4
TOTAL - - - £.						176,983 - -	176,327 - -
A B S T R A C T:							
Number of Pensioners.						Amount.	
Salaried Officers - - - - -						£. s. d.	
462						92,575 - -	
Artificers - - - - -						84,408 - -	
2,963							
£. 3,425						176,983 - -	

No. 16 (SECTION No. 2).--CIVIL PENSIONS AND ALLOWANCES--*continued.*

	REQUIRED for the Service of the Year 1867-68.	LAST VOTE for the Financial Year 1866-67.
	£. s. d.	£. s. d.
POLICE FORCE:		
Estimated Amount required for Contribution in Aid of the Fund for the Pensions of Metropolitan Police employed in the several Establishments at Home - - - - - £.	939 - -	692 - -
COAST GUARD SERVICE:		
For Pensions granted to persons formerly employed in the Coast Guard Service, as shown in the Estimates for 1866/67 - - - - -	36,818 - -	36,818 - -
Abate,—Amount of Pensions ceased between the 1st December 1865 and the 30th November 1866 - - - - -	1,377 7 -	
£.	35,440 13 -	
Add,—Pensions granted between the 1st December 1865 and the 30th November 1866; viz.—		
For Pensions to 147 Officers and Men lately belonging to the Coast Guard Service on Shore - - - - -	5,552 7 -	
£.	40,993 - -	36,818 - -
Number of Pensioners of each Class paid out of the above Sum :		
Clerks, Coast Guard Office - - - 4	Acting Boatswains - - - - 1	
Lieutenants - - - - - 17	Mariners - - - - - 27	
Chief Officers - - - - - 68	Mounted Guard - - - - - 7	
Chief Quartermasters in Command - 2	Gunners - - - - - 6	
Masters and Second Masters - - - 8	Second Mate in Command - - 1	
Chief Boatmen in Charge - - - 88	Acting Chief Boatswain's Mates - 2	
Chief Boatmen - - - - - 121	Acting Chief Carpenter's Mates - 5	
Commissioned Boatmen - - - - 315	Steward - - - - - 1	
Boatmen - - - - - 290	Widows - - - - - 65	
Able Seamen (Tenders) - - - - 8	Children - - - - - 145	
Extra Men - - - - - 30		
	TOTAL - - - 1,211	
ABSTRACT:		
CIVIL PENSIONS, ADMIRALTY AND NAVAL ESTABLISHMENTS - - - - -	176,983 - -	176,327 - -
Ditto - - CONTRIBUTIONS TOWARDS PENSIONS OF METROPOLITAN POLICE	939 - -	692 - -
Ditto - - COAST GUARD SERVICE //	40,993 - -	36,818 - -
TOTAL - - - £.	218,915 - -	213,837 - -

— No. 17. —

EXTRA ESTIMATE for SERVICES NOT NAVAL.—FREIGHT, &c., on Account of the
ARMY DEPARTMENT.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
	£. s. d.	£. s. d.
For Expense of Her Majesty's Troop Ships:—		
Sea Pay of Officers and Crews - - - - -	57,840 - -	57,078 - -
Victuals, &c., for ditto - - - - -	22,150 - -	21,898 - -
Coals for Her Majesty's Troop Ships - - - - -	75,000 - -	50,000 - -
Medicines for Officers and Crews - - - - -	336 - -	336 - -
Pilotage, Passage Money, Travelling Expenses, and Lodging Allowances } of Crews, and other Miscellaneous Expenses - - - - - }	1,400 - -	{ Provided for under Vote 14.
TOTAL Expense of Her Majesty's Troop Ships - - - £.	156,726 - -	129,312 - -
For Freight of Ships engaged for the Conveyance of Troops to and from Great } Britain and the Colonies, and of Military Pensioners from Great Britain - }	83,950 - -	95,850 - -
For Freight of Ships for the Conveyance of Military Stores to and from Great } Britain and the Colonies - - - - - }	45,000 - -	49,500 - -
For Freight of Ships for the Conveyance of Troops from one Colony to another, } and their Rations; and for the Mess and Passage of Officers and Men from one } Foreign Station to another, and from one Port to another in the same } command - - - - - }	24,000 - -	31,820 - -
For Freight of Ships for the Conveyance of Stores from one Colony to another, } and from one Foreign Station to another, and from one Port to another in } the same command - - - - - }	6,000 - -	7,500 - -
For Mess of Military Officers and Civilians of the Army Department while } on Passage to and from Foreign Stations in Her Majesty's Ships of War, } Transports, and Freight Ships - - - - - £. 19,150		
Abate—Credit for Mess Contribution - - - - - 6,500		
	12,650 - -	8,270 - -
For Freight of Ships for the Conveyance of Troops coastwise, and between Great } Britain and Ireland, when over 50 Men - - - - - }	11,350 - -	10,580 - -
For Passage Money on Account of Military Officers and Civilians of the Army } Department going upon and returning from Services Abroad - - - - - }	38,000 - -	42,000 - -
For Fitting Monthly Transports and Freight Ships - - - - -	1,100 - -	710 - -
For Bedding, Blankets, and other Stores, for Troops - - - - -	5,100 - -	8,100 - -
For Forage and Stores for Horses - - - - -	400 - -	100 - -
For the Pay and Contingent Expenses for Officers of the Navy employed as Trans- } port Officers afloat, or as Temporary Transport Officers at the Outports - }	1,500 - -	2,210 - -
For Provisions and Medical Comforts for Troops embarked on board Ships of } War, Troop Ships, Monthly Transports, and Freight Ships - - £. 56,900		
Abate—Credit for Ration Stoppages - - - - - 20,000		
	36,900 - -	16,836 - -
£.	422,676 - -	402,788 - -
Abate—Contribution payable by Indian Government on account of } Conveyance of one Regiment to India <i>via</i> Ceylon - - - - - }	16,700 - -	- -
TOTAL - - - £.	405,976 - -	402,788 - -

Note.—The Troop Ships for the India Service (five in number) comprise two ships for service on the European side of the Isthmus of Suez, and three ships for service on the Indian side of the Isthmus; and, as the whole of the charges of the five ships will be borne by the Indian Government for 1867/68, no sum has been taken on account of this service in these Estimates. In future years, when the two European ships will be available for a portion of the year for the service of the Imperial Government, the expense of the same will be divided between that and the Indian Government, in the proportion of two-fifths to the former and three-fifths to the latter. The whole of the expense of the three Indian ships will be defrayed by the Indian Government.

RECAPITULATION OF THE FOREGOING ESTIMATES.

Nos. of Votes.	Pages.		REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
			£. s. d.	£. s. d.
1 to 14	6 to 104	} NAVAL SERVICE	EFFECTIVE - 9,067,758 - -	*8,587,498 - -
15 and 16	105 to 121		NON-EFFECTIVE 1,452,519 - -	*1,444,449 - -
		TOTAL for the NAVAL SERVICE, as per Abstract - - - - -	10,520,277 - -	*10,031,947 - -
		For the Service of other Departments:		
17	122	ARMY DEPARTMENT (Conveyance of Troops)	405,976 - -	402,788 - -
		GRAND TOTAL - - - £.	10,926,253 - -	*10,434,735 - -

* Of this sum, 12,656 *l.* was Voted on the Supplementary Estimate for the additional charge for altering and improving the system of retirement of officers of the Royal Navy, with a view of accelerating promotion (*see* Parliamentary Paper, 9th March 1866, No. 101); 5,926 *l.* was Voted on the Supplementary Estimate for increased pay and allowances to the medical officers of the Royal Navy (*see* Parliamentary Paper, 17th July 1866, No. 414); 10,000 *l.* was Voted on the Supplementary Estimate for an instalment on a ship to be built on the design of Captain Cowper Coles (*see* Parliamentary Paper, 17th July 1866, No. 415); and 18,000 *l.* was Voted on the Supplementary Estimate for the completion of Her Majesty's ship "Northumberland" (*see* Parliamentary Paper, 17th July 1866, No. 416.)

The whole Charge amounts to the Sum of Ten Million Nine Hundred and Twenty-six Thousand Two Hundred and Fifty-three Pounds.

Admiralty, }
15 February 1867.

JOHN S. PAKINGTON.

C. DU CANE.

A P P E N D I X.

(For Description,—*see* Table of Contents, p. 2.)

EXPLANATORY STATEMENT (A. 1)

STATEMENT, showing in Detail the PAY and ESTABLISHED ALLOWANCES of FLAG OFFICERS in Commission, and other OFFICERS, PETTY OFFICERS, SEAMEN and BOYS, comprised in the Estimate for "SEAMEN," classified under OFFICERS, &c., and the FULL COMPLEMENTS of all HER MAJESTY'S SHIPS and VESSELS in COMMISSION, and COAST

RANK.	Pay of each Rank.		Allowances of each Rank.			TOTAL Pay and Allowances of each Rank.
	Daily.	Annual.	Nature.	Daily.	Annual.	
FLAG OFFICERS, AND SUPERINTENDENTS OF DOCKYARDS, &c.	£. s. d.	£. s. d.		£. s. d.	£. s. d.	£. s. d.
Admirals - - - { Commanding in Chief at Home - - - }	5 - -	1,825 - -	Table Money -	3 - -	1,095 - -	2,920 - -
Vice Admirals - - { Commanding in Chief at Home - - - }	4 - -	1,460 - -	Table Money -	3 - -	1,095 - -	2,555 - -
	4 - -	1,460 - -	- ditto - -	4 10 -	1,642 10 -	3,102 10 -
Rear Admirals - - { Commanding in Chief at Home - - - }	3 - -	1,095 - -	Table Money -	3 - -	1,095 - -	2,190 - -
	3 - -	1,095 - -	- ditto - -	4 10 -	1,642 10 -	2,737 10 -
	3 - -	1,095 - -	- ditto - -	1 10 -	547 10 -	1,642 10 -
	3 - -	1,095 - -	- ditto - -	2 - -	730 - -	1,825 - -
Commodore, 1st Class - Commanding in Chief Abroad	3 - -	1,095 - -	Table Money -	4 10 -	1,642 10 -	2,737 10 -
Abroad - - - - { Pay, as Captain of the Ship he commands, provided for under "Captains," p. 128. }			{ Allowance - -	1 - -	365 - -	730 - -
			{ Table Money -	1 - -	365 - -	
Abroad - - - - - ditto - - -			{ Allowance - -	- 10 -	182 10 -	547 10 -
Superintending Dockyards at Home - - - -	1 12 11	600 14 7	Command Money -	- 5 -	91 5 -	
	1 12 11	600 14 7	{ Allowance - -	1 - -	365 - -	1,467 12 1
Superintending Dockyards Abroad - - - -	1 12 11	600 14 7	{ Table Money -	1 - -	365 - -	
	1 12 11	600 14 7	{ Command Money -	- 7 6	136 17 6	1,285 2 1
Superintending Dockyards at Home - - - -	1 12 11	600 14 7	{ Allowance - -	- 10 -	182 10 -	
	1 12 11	600 14 7	{ Table Money -	1 - -	365 - -	691 19 7
In Charge of Naval Establishments Abroad - - -	1 12 11	600 14 7	{ Command Money -	- 7 6	136 17 6	
	1 12 11	600 14 7	- ditto - -	- 5 -	91 5 -	737 12 1
Flag Lieutenants - - - - -	- 10 -	182 10 -	- - -	- - -	- - -	691 19 7
Secretaries to Flag Officers, &c. - - - -	1 2 -	401 10 -	- - -	- - -	- - -	182 10 -
	- 16 6	301 2 6	- - -	- - -	- - -	401 10 -
	- 13 8	249 8 4	- - -	- - -	- - -	301 2 6
	- 11 6	209 17 6	- - -	- - -	- - -	249 8 4
Clerks and Retinues - - - - -	{ At various Rates of Pay, according to their Ranks or Ratings, from 24l. 6s. 8d. to 127l. 15s. per annum - - - }		- - -	- - -	- - -	209 17 6

N.B.—Fractional parts of a Pound are not shown in the totals of the several Ranks and Ratings.

No. 1.

to VOTE No. 1.—“ WAGES, &c., to SEAMEN,” page 6.

their Retinues; of OFFICERS superintending HER MAJESTY'S DOCKYARDS, &c., and their Retinues; and of COMMISSIONED the several Heads of Service specified; the whole being calculated on the basis of the Pay and Allowances of the FLAG GUARD STATIONS ON SHORE (except “ CIVILIANS,” provided for under Vote No. 4), on the 1ST DECEMBER 1866.

Commanders in Chief, &c., on Home Stations.			Commanders in Chief, &c., on Foreign Stations.			Superintendents of Dockyards.			Total Number of each Rank.	Total Amount of each Rank.		TOTAL CHARGE.	R A N K.					
No.	Total per Annum.		No.	Total per Annum.		No.	Total per Annum.			Pay.	Allowances.							
	Pay.	Allowances.		Pay.	Allowances.		Pay.	Allowances.										
	£.	£.		£.	£.		£.	£.		£.	£.	£.						
2	3,650	2,190	-	-	-	-	-	-	2	3,650	2,190	5,840	Admirals.					
1	1,460	1,095	-	-	-	-	-	-	4	5,840	6,023	11,863	Vice Admirals.					
-	-	-	3	4,380	4,928	-	-	-										
2	2,190	2,190	-	-	-	-	-	-	7	7,665	7,300	14,965	Rear Admirals.					
-	-	-	2	2,190	3,285	-	-	-										
-	-	-	-	-	-	2	2,190	1,095										
-	-	-	-	-	-	1	1,095	730										
-	-	-	1	1,095	1,642	-	-	-	1	1,095	1,642	2,737	Commodore, 1st Class.					
-	-	-	1*	-	730	-	-	-	4	-	2,372	2,372	Commodores, 2d Class.					
-	-	-	3*	-	1,642	-	-	-										
-	-	-	-	-	-	1	601	91	3	1,802	1,643	3,445						
-	-	-	-	-	730	1	601	137										
-	-	-	-	-	548	1	600	137										
-	-	-	-	-	-	3	1,802	274	5	3,004	502	3,506	Captains.					
-	-	-	-	-	-	1	601	137										
-	-	-	-	-	-	1	601	91	15	2,738	-	2,738	Flag Lieutenants.					
5	912	-	7	1,278	-	3	548	-										
4	1,606	-	6	2,409	-	-	-	-						19	6,126	-	6,126	Secretaries to Flag Officers, &c.
1	301	-	1	301	-	-	-	-										
1	250	-	-	-	-	-	-	-										
-	-	-	6	1,259	-	-	-	-										
73	3,544	-	75	3,712	-	43	1,341	-	191	8,597	-	8,597	Clerks and Retinues.					
89	13,913	5,475	105	16,624	13,505	57	9,980	2,692										
No. 194 - - £.49,517						No. 57 - £.12,672			251									
4*	{ Deduct Commodores included among Captains on next page - - - - - }												4					
190						TOTALS carried to page 135 - - -			247	40,517	21,672	62,189	{ TOTALS carried to page 135.					

RANK.	PAY OF EACH RANK.			ALLOWANCES OF EACH RANK.			EFFECTIVE, FOR GENERAL SERVICE.			GUNNERY, and TRAINING SHIPS.			STATIONARY, RECEIVING, and DEPOT SHIPS (including Yachts).			SURVEYING VESSELS.		
	—	Daily.	Annual.	Nature.	Daily.	Annual.	No. of each Rank.	Total per Annum.		Number of each Rank.	Total per Annum.		No. of each Rank.	Total per Annum.		No. of each Rank.	Total per Annum.	
								Pay.	Allowances.		Pay.	Allowances.		Pay.	Allowances.		Pay.	Allowances.
COMMISSIONED OFFICERS, &c.:	Commodore of the 1st Class and Controller General of the Coast Guard (borne in H.M. Ship "Pembroke")	—	£. s. d.	£. s. d.	—	£. s. d.	—	—	—	—	—	—	—	—	—	—	—	—
	Captain and Deputy Controller General of the Coast Guard (borne in H. M. Ship "Pembroke")	—	£. s. d.	1 12 11	600 14 7	—	99 5 5	—	—	—	—	—	—	—	—	—	—	—
	Captains	—	—	1 12 11	600 14 7	—	At various Rates, according to the complement of the Ship, and whether employed on Sea or Harbour Service, from 91 <i>l.</i> 5 <i>s.</i> to 328 <i>l.</i> 10 <i>s.</i> per annum	57	29,649	11,264	3	1,400	466	9	4,503	1,405	2	900
	Commanders	—	—	1 7 5	500 7 1	—	Command Money *	—	—	—	—	—	—	—	—	—	—	—
Inspecting Commanders	—	—	1 1 11	399 19 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Deputy Inspectors General of Hospitals and Fleets	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chief Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Lieutenants	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Captains	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspecting Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Deputy Inspectors General of Hospitals and Fleets	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chief Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Lieutenants	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Captains	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspecting Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Deputy Inspectors General of Hospitals and Fleets	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chief Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Lieutenants	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Captains	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspecting Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Deputy Inspectors General of Hospitals and Fleets	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chief Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Lieutenants	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Captains	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspecting Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Deputy Inspectors General of Hospitals and Fleets	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chief Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Lieutenants	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Captains	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspecting Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Deputy Inspectors General of Hospitals and Fleets	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chief Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Lieutenants	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Captains	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspecting Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Deputy Inspectors General of Hospitals and Fleets	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chief Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Lieutenants	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Captains	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspecting Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Deputy Inspectors General of Hospitals and Fleets	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chief Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Lieutenants	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Captains	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspecting Commanders	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Deputy Inspectors General of Hospitals and Fleets	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chief Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inspectors of Machinery Afloat	—	—	1 12 11	600 14 7	—	—	—	—	—									

* The additional Allowance of £. 258 per annum to the Captain of the "Excellent," as Superintendent of the Royal Naval College, at Portsmouth, to make his Total Pay, &c., up to 850*l.* per annum, is provided for under Vote No. 5, page 2

EXPLANATORY STATEMENT (A. 1)—continued.

TROOP SHIPS (Imperial Service).				STORE SHIPS.			DRILL SHIPS.			COAST GUARD DISTRICT SHIPS.			COAST GUARD TENDERS (Cruisers).			COAST GUARD <i>on Shore.</i>			TROOP SHIPS (For Indian Service, Overland Route.) †			TOTAL AMOUNT OF EACH RANK.		TOTAL CHARGE.	R A N K.
No. of each Rank.	Pay.	Total per Ann. Allow- ances.	No. of each Rank.	Pay.	Total per Ann. Allow- ances.	No. of each Rank.	Pay.	Total per Ann. Allow- ances.	No. of each Rank.	Pay.	Total per Ann. Allow- ances.	No. of each Rank.	Pay.	Total per Ann. Allow- ances.	No. of each Rank.	Pay.	Total per Ann. Allow- ances.	No. of each Rank.	Pay.	Total per Ann. Allow- ances.	No. of each Rank.	Pay.	Allow- ances.		
COMMISSIONED OFFICERS, &c.:																									
Commodore of the 1st Class and Controller General of the Coast Guard (borne in H. M. S. "Pembroke.")																									
Captain and Deputy Controller General of the Coast Guard (borne in H. M. S. "Pembroke.")																									
TOTAL, carried to page 135.																									
Captains.																									
Commanders.																									
Inspecting Commanders.																									
Deputy Inspectors General of Hospitals and Fleets.																									
Chief Inspectors of Machinery Afloat.																									
Inspectors of Machinery Afloat.																									
Lieutenants.																									
Commissioned Officers, &c., carried forward.																									

RANK.	PAY OF EACH RANK.			ALLOWANCES OF EACH RANK.			EFFECTIVE, FOR GENERAL SERVICE.			GUNNERY, and TRAINING SHIPS.			STATIONARY, RECEIVING, and DEROT SHIPS (including Yachts).			SURVEYING VESSELS.		
	—	Daily.	Annual.	Nature.	Daily.	Annual.	No. of each Rank.	Total per Annum.		No. of each Rank.	Total per Annum.		No. of each Rank.	Total per Annum.		No. of each Rank.	Total per Annum.	
								Pay.	Allowances.		Pay.	Allowances.		Pay.	Allowances.		Pay.	Allowances.
COMMISSIONED	OFFICERS, &c.— <i>continued</i> .	—	£. s. d.	£. s. d.	Annual.	£. s. d.	537	135,119	23,345	61	14,645	1,844	92	27,983	2,682	16	4,768	670
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Staff Commanders, and Masters	In Coast Guard Service on Shore	- 10 -	182 10 -	- - -	- - -	- - -	2	420	73	2	420	73	3	630	109	2	575	73
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Staff Commanders, and Masters	In Command, and in Charge of Stores	- 10 -	182 10 -	- - -	- - -	- - -	3	629	110	-	-	-	6	1,259	219	-	-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Staff Commanders, and Masters	In Charge of Stores, and certain Commodores' Ships on Foreign Stations	- 10 -	182 10 -	- - -	- - -	- - -	23	4,827	1,069	-	-	-	2	657	111	5	1,049	201
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Staff Commanders, and Masters	All others	- 10 -	182 10 -	- - -	- - -	- - -	71	16,034	185	2	538	-	36	8,860	5	27	6,242	38
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Chief Officers	In Coast Guard Service on Shore	- 10 -	182 10 -	- - -	- - -	- - -	95	23,065	3,192	2	486	91	99	24,036	1,816	-	-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Chief Engineers	In Command Tenders (Cruisers)	- 11 -	200 15 -	- - -	- - -	- - -	1	210	137	8	1,768	1,095	2	420	274	-	-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Chaplains	At various Rates, according to their Length of Service and Qualification, from 191 l. 12 s. 6 d. to 365 l. per annum	- - -	- - -	- - -	- - -	- - -	53	11,713	-	2	420	-	13	2,873	-	-	-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Staff Surgeons	In Flag Ships or Foreign Stations	- 10 -	182 10 -	- - -	- - -	- - -	8	3,504	730	-	-	-	-	-	-	-	-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Surgeons	All others	- 10 -	182 10 -	- - -	- - -	- - -	2	931	-	5	2,245	-	12	5,621	-	3	986	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Paymasters	At various Rates, according to their Length of Service, from 249 l. 8 s. 4 d. to 600 l. 14 s. 7 d. per annum	- 10 -	182 10 -	- - -	- - -	- - -	10	3,700	630	2	740	164	10	3,700	666	-	-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Naval Instructors	In Troop Ships	- 10 -	182 10 -	- - -	- - -	- - -	89	33,066	-	6	2,220	-	16	5,920	-	4	1,344	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Sub-Lieutenants	All others	- 10 -	182 10 -	- - -	- - -	- - -	52	7,117	385	12	1,643	-	-	-	-	-	-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
Sub-Lieutenants	At various Rates, according to their Length of Service, from 127 l. 15 s. to 237 l. 5 s. per annum	- 10 -	182 10 -	- - -	- - -	- - -	198	18,068	-	13	1,186	-	-	-	-	-	-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-
								-	-		-	-		-	-		-	-

EXPLANATORY STATEMENT (A. 1.)—continued.

TROOP SHIPS (Imperial Service).				STORE SHIPS.				DRILL SHIPS.				COAST GUARD DISTRICT SHIPS.				COAST GUARD TENDERS (Cruisers).				COAST GUARD <i>on Shore</i> .				TROOP SHIPS (for Indian Service, Overland Route).*				TOTAL AMOUNT of EACH RANK.		TOTAL CHARGE.	R A N K.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
No. of each Rank.		Total per Ann.		No. of each Rank.		Total per Ann.		No. of each Rank.		Total per Ann.		No. of each Rank.		Total per Ann.		No. of each Rank.		Total per Ann.		No. of each Rank.		Total per Ann.		Pay.		Allowances.		£.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
Pay.	Allowances.	£.	£.	Pay.	Allowances.	£.	£.	Pay.	Allowances.	£.	£.	Pay.	Allowances.	£.	£.	Pay.	Allowances.	£.	£.	Pay.	Allowances.	£.	£.	Pay.	Allowances.	£.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
4	5,886	1,410	4	948	182	10	3,322	456	45	12,786	2,892	1	365	68	65	23,725	The <i>Special</i> Allowances to 5 in- specting Lieute- nants and Lieute- nants commanding Stations are pro- vided for in a separate Item, "Special Pay, &c." For particu- lars, <i>see</i> State- ment (A. 2), page 142.	20	4,738	1,679	234,285	35,228	£.	269,513	{ COMMISSIONED OFFICERS, &c. — <i>continued</i> . Inspecting Lieutenants. Lieutenants commanding Sta- tions.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	1,643	-	-	-	-	-	-	-	-	-	-	1,643	{ Staff Commanders, and Masters.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	6,935	-	-	-	-	-	-	-	-	-	-	6,935	{ Staff Commanders, and Masters.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
-	-	-	3	630	109	-	-	-	-	-	-	-	-	-	12	2,675	437	3,112	439	2,518	628	1,381	712	3,021	3,733	37,760	1,825	6,387	{ Staff Commanders, and Masters serving as Inspecting Com- manders. { Staff Commanders, and Masters commanding Stations.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
5	1,259	35	1	210	-	10	3,166	5	-	-	-	-	-	-	5	1,186	-	10	1,825	-	-	-	2,811	53,614	59,699	3,909	18,129	4,234	14,089	55,562	9,600	5,525	58,001	9,145	19,345	602,456	{ Sub-Lieutenants. Commissioned Officers, &c.— carried forward.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	2,811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Vide Note at foot of "Abstract," page 136.

[illegible]

SUBORDINATE OFFICERS:

EXPLANATORY STATEMENT (A. 1)—continued.

TROOP SHIPS (for Indian Service, Overland Route.) *			COAST GUARD TENDERS (Cruisers).			COAST GUARD on Shore.			TROOP SHIPS (for Indian Service, Overland Route.) *			TOTAL AMOUNT of EACH RANK.		TOTAL CHARGE.		R A N K.		
Total per Ann.		No. of each Rank.	Total per Ann.		No. of each Rank.	Total per Ann.		No. of each Rank.	Total per Ann.		No. of each Rank.	Pay.		Allowances.	£.	£.	£.	
Pay.	Allowances.		Pay.	Allowances.		Pay.	Allowances.		Pay.	Allowances.								
£.	£.		£.	£.		£.	£.		£.	£.		£.	£.					
13,130	2,174	16	3,715	678	30	11,252	456	1	164	170	47,946	-	45	11,993	2,393	2,173	602,456	
-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	37	6,113	
1,259	-	7	1,468	-	-	-	-	-	-	-	-	-	5	1,049	-	245	51,956	
-	-	6	1,259	-	-	-	-	-	-	-	-	-	-	-	-	44	9,234	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	3,285	
639	-	10	1,095	15	-	-	-	-	-	-	-	-	15	1,597	-	152	17,734	
-	-	-	-	-	-	-	-	-	-	1	91	55	-	-	-	1	91	
-	-	-	-	-	-	-	-	-	-	2	182	110	-	-	-	2	182	
-	-	-	-	-	-	-	-	-	-	4	365	219	-	-	-	4	365	
-	-	-	-	-	-	-	-	-	-	The Special Allowance to each is provided for in a separate item, "Special Pay, &c." For particulars, see Statement (A.2) p. 142			-	-	-	21		
-	-	-	-	-	-	-	-	-	-	2,372			-	-	-	5		
767	-	1	128	-	34	4,343	-	-	-	-	-	-	5	821	-	194	25,001	
4,817	-	23	3,312	73	68	10,348	283	6	931	55	-	-	35	4,790	-	1,176	167,968	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	156	
20,612	2,174	63	10,977	766	35	12,009	493	47	6,479	123	177	48,584	105	20,250	2,393	4,079	836,683	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
292	-	-	-	-	10	730	-	-	-	-	-	-	5	365	-	103	7,519	
497	-	3	213	-	1	73	-	-	-	-	-	-	-	-	-	168	11,934	
-	-	-	-	-	-	-	-	6	493	The Special Allowance to Second Rates, not in command, is provided for in a separate item, "Special Pay, &c." For particulars, see Statement (A.2) p. 142			-	-	6	493		
-	-	-	-	-	-	-	-	16	876	-	-	-	-	-	-	16	876	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	189	3,162	
91	-	3	137	-	-	-	-	-	-	-	-	-	-	-	-	107	4,882	
880	-	6	350	-	11	803	-	22	1,369	-	-	-	5	365	-	810	35,924	
91,402	2,174	69	11,327	766	219	46,608	3,573	69	7,848	123	177	48,584	110	20,615	2,393	4,889	872,607	
(TOTAL, COMMISSIONED OFFICERS, &c.)																		55,454
(TOTAL, SUBORDINATE OFFICERS, &c.)																		872,607

N.B..—Fractional parts of a Pound are not shown in the Totals of the several Ranks and Ratings.

EXPLANATORY STATEMENT (A. 1)—continued.

[illegible]

FLAG OFFICERS AND SUPERINTENDENTS OF DOCK YARDS, &c., brought from page 127

COMMODORE, &c., of COAST GUARD, brought from page 129

TOTALS of all SERVICES

FOR ABSTRACT OF THE FOREGOING STATEMENT, See next page.

* *Vide* Note at foot of Abstract, (page 136).

ABSTRACT of the FOREGOING STATEMENT, showing the TOTAL NUMBER and AMOUNT

HEADS OF SERVICE.	FLAG OFFICERS, &c.			OFFICERS SUPERINTENDING DOCKYARDS, &c.			COMMISSIONED OFFICERS, &c.			SUBORDINATE OFFICERS.			WARRANT OFFICERS.		
	No.	Pay.	Allowances.	No.	Pay.	Allowances.	No.	Pay.	Allowances.	No.	Pay.	Allowances.	No.	Pay.	Allowances.
FLAG OFFICERS, &c.	190	£. 30,537	£. 18,980	57	£. 9,980	£. 2,692	-	-	-	-	-	-	-	-	-
EFFECTIVE, for General Service	-	-	-	-	-	-	2,199	442,045	33,001	690	28,434	-	248	35,774	369
GUNNERY, and TRAINING SHIPS	-	-	-	-	-	-	163	35,487	3,303	12	684	-	67	8,067	101
STATIONARY SHIPS, &c.	-	-	-	-	-	-	894	175,639	8,146	36	2,190	-	655	65,883	256
SURVEYING VESSELS	-	-	-	-	-	-	87	18,796	1,098	15	849	-	2	201	-
TROOP SHIPS (Imperial Service)	-	-	-	-	-	-	101	20,612	2,174	13	880	-	37	3,997	28
STORE SHIPS	-	-	-	-	-	-	63	10,977	766	6	350	-	18	1,770	18
DRILL SHIPS	-	-	-	-	-	-	35	12,009	493	-	-	-	26	2,810	36
TOTALS	190	30,537	18,980	57	9,980	2,692	3,542	715,565	48,981	772	33,387	-	1,153	118,502	808
Numbers and Amounts for Her Majesty's Fleet, as provided for in the body of the Estimate (page 6)	No. 190 - £. 49,517			No. 57 - £. 12,672			No. 3,542 - £. 764,546			No. 772 - £. 33,387			No. 1,153 - £. 119,310.		
COAST GUARD SERVICE AFLOAT:	COMMODORE CONTROLLER-GENERAL of the COAST GUARD.			DEPUTY CONTROLLER-GENERAL of the COAST GUARD.											
COMMODORE, &c.	1	1,095	170	1	601	99	-	-	-	-	-	-	-	-	-
DISTRICT SHIPS	-	-	-	-	-	-	208	45,805	3,573	11	803	-	56	6,844	46
TENDERS (Cruisers)	-	-	-	-	-	-	47	6,479	123	22	1,369	-	-	-	-
TOTALS	1	1,095	170	1	601	99	255	52,284	3,696	33	2,172	-	56	6,844	46
COAST GUARD SERVICE ON SHORE	-	-	-	-	-	-	177	48,584	384	-	-	-	194	21,243	23
TROOP SHIPS FOR INDIAN SERVICE, OVER-LAND ROUTE*	-	-	-	-	-	-	105	20,250	2,393	5	365	-	35	3,468	23

* *Note*.—The Troop Ships for the Indian Service (Five in number) comprise two Ships for service on the European side of the Isthmus of Suez, and three ships for service on the Indian side of the Isthmus; and the whole of the expense for Pay, &c., of the Officers and Crews of the five Ships will be borne by the Indian Government for the year 1867–68. In future years, when the two European Ships will be available for a portion of the year for the service of the Imperial Government, the expense of the same will be divided between that and the Indian Government, in the proportions of two-fifths to the former and three-fifths to the latter. The whole expense of the three Indian Ships will be defrayed by the Indian Government.

EXPLANATORY STATEMENT (A. 1)—*continued*.

of each CLASS, &c. as provided for in the body of the Estimate, at page 6.

PETTY OFFICERS AND SEAMEN.				TOTAL.			TOTAL.			BOYS.			GRAND TOTAL.		HEADS OF SERVICE.
No.	Pay.	Allowances.	No.	Pay.	Allowances.	Pay and Allowances.	No.	Pay.	Allowances.	No.	Pay and Allowances.				
-	-	£.	-	£.	£.	£.	-	-	£.	-	£.	247	62,189	£.	FLAG OFFICERS, &c.
22,450	681,537	39,023	247	40,517	21,672	62,189	-	-	-	-	-	247	62,189	-	EFFECTIVE, for General Service.
2,428	79,813	3,870	25,687	1,187,790	72,393	1,260,183	3,869	41,189	-	-	-	29,556	1,301,372	-	GUNNERY, and TRAINING SHIPS.
4,708	145,843	4,211	2,670	124,051	7,274	131,325	3,220	29,566	271	-	-	5,890	161,162	-	STATIONARY SHIPS, &c.
281	9,041	344	6,293	389,555	12,613	402,168	189	2,012	-	-	-	6,482	404,180	-	SURVEYING VESSELS.
814	26,363	677	385	28,887	1,442	30,329	27	287	-	-	-	412	30,616	-	TROOP SHIPS (Imperial Service).
400	12,584	422	965	51,852	2,879	54,731	68	724	-	-	-	1,033	55,455	-	STORE SHIPS.
220	6,488	1,214	487	25,681	1,206	26,887	45	479	-	-	-	532	27,366	-	DRILL SHIPS.
31,301	961,669	49,761	281	21,307	1,743	23,050	-	-	-	-	-	281	23,050	-	TOTALS.
No. 31,301 - £. 1,011,430			37,015	1,869,640	121,222	1,990,862	7,418	74,257	271	No. 44,433 - £. 2,065,390			Numbers and Amounts for Her Majesty's Fleet, as provided for in the body of the Estimate (page 6).		
			No. 37,015 - £. 1,990,862			{ No. 7,418 - £. 74,528 including Boys for Training, as above. }									
-	-	-	2	1,696	269	1,965	-	-	-	-	-	2	1,965	-	COAST GUARD SERVICE AFLOAT:
1,670	50,879	3,050	1,945	104,331	6,669	111,000	171	1,821	-	-	-	2,116	112,821	-	COMMODORE, &c.
594	18,335	219	663	26,183	342	26,525	169	1,677	-	-	-	832	28,202	-	DISTRICT SHIPS.
2,264	69,214	3,269	2,610	132,210	7,280	139,490	340	3,498	-	-	-	No. 2,950	£. 142,988	-	TENDERS (Cruisers).
3,929	124,701	3,011	4,300	194,528	3,395	197,923	-	-	-	-	-	No. 4,300	£. 197,923	-	Total Number and Amount for Her Majesty's Coast Guard Service <i>Afloat</i> , as provided for in the body of the Estimate (page 6).
			TOTAL for HER MAJESTY'S FLEET and COAST GUARD SERVICE, as provided for in the body of the Estimate (page 6)												COAST GUARD SERVICE ON SHORE. Total Number and Amount, as provided for in the body of the Estimate, (page 6).
1,079	30,866	1,671	1,224	54,949	4,087	59,036	5	53	-	-	-	No. 51,683	£. 2,406,301	-	TROOP SHIPS FOR INDIAN SERVICE, OVERLAND ROUTE. Total Number and Amount as provided for in the body of the Estimate (page 6).
			TOTAL of all SERVICES, as provided for in the body of the Estimate (page 6)												
			Add,—Special Pay and Allowances, as per Statement (A. No. 2) annexed (page 138) -												
			Estimated Cost of Good Conduct Pay, &c., as shown in the body of the Estimate (page 7) -												
			Estimated Expense of raising Men for the Fleet, as shown in the body of the Estimate (page 7) -												
			TOTAL AMOUNT, as provided for in the body of the Estimate, of "WAGES, &c. to SEAMEN" (page 7) - £.												
			Deduct the following Sums, &c., for the Services named (which are chargeable to the Votes, &c. specified, but are included above, as the Officers and Men to whom they relate are borne on Ships Books as <i>belonging to the Navy</i> , and are comprised in the Total Number to be Voted for the Fleet, &c.) viz.:—												
			The Pay and Allowances of Officers superintending Her Majesty's Dockyards and Naval Establishments, and their Retinues; provision for the same being made in the Estimate for Dockyards, &c., (Vote No. 6, page 26), as part of the Cost of those Establishments												
			The Officers and Crews (except Marines) together with their Pay, &c., of Troop Ships, as follows, viz.:—												
			Her Majesty's Troop Ships, provision for the same being made in the Estimate for Transport Service (Vote No. 17, page 122.) -												
			Troop Ships for Indian Service, the Cost of which will be defrayed by the Indian Government, <i>vide</i> Note *												
			NET TOTAL. WAGES, &c., to SEAMEN in FLEET and COAST GUARD SERVICE												
			No. 52,912												
			£. 2,465,390												
			20,351												
			41,500												
			600												
			2,527,841												
			127,216												

Appendix, No. 2.

EXPLANATORY STATEMENT (A. 2).

SPECIAL PAY and ALLOWANCES to OFFICERS and Others for the Particular Services specified.

[Note.—The following being of an exceptional character, are not included with the Pay and *Established* Allowances of the Fleet, &c., in the previous portion of this Statement.]

RANK.	Number.	DESCRIPTION OF PAY, &c.		ANNUAL AMOUNT.	TOTAL AMOUNT.	TOTAL AMOUNT of the Whole.
				£. s. d.	£. s. d.	£. s. d.
Vice Admiral of Great Britain and Ireland - - - - -	1	} By Patent - - - - -		434 1 9	776 10 9	
Rear Admiral of Great Britain and Ireland - - - - -	1			342 9 -		
			Daily. Annual.			
Naval Aides-de-Camp to Her Majesty - {	1	Principal - - - £. 1 - -	£. 365 - -	365 - -	1,460 - -	
	6	Senior - - - - - 10 -	182 10 -	1,095 - -		
OFFICERS, &c., SUPERINTENDING CONTRACT MAIL STEAM PACKETS:						
At Liverpool, borne in Her Majesty's Ship "Saturn":						
Commander Superintending - - -	1	Pay and Allowances - - - -	£. 475 - -			
Paymaster, Acting as Clerk - - -	1	Salary in addition to Half Pay - -	182 10 -			
Commander's Servant - - - - -	1	Wages - - - - -	24 6 8			
Messenger - - - - -	1	Ditto - - - - -	52 2 10			
				733 19 6		
		Moiety to be paid by the Admiralty - -	£.	366 19 9		
At Dover, borne in Her Majesty's Ship "Formidable":						
Commander Superintending - - -	1	{ Pay and Allowances, 465 l., half to be paid by the Admiralty. (Pay in addition to above of 50 l. a year, to be paid by the Post Office - - - - - }		232 10 -		
Messenger - - - - -	1	Wages, 45 l. 12 s. 6 d. (half to be paid by the Admiralty)		22 16 3		
Boatmen - - - - -	2	Ditto 91 l. 5 s. (ditto ditto)		45 12 6		
		Proportion to be paid by the Admiralty - -	£.	300 18 9		
At Southampton, borne in Her Majesty's Ship "Victory":						
Captain Superintending - - -	1	Pay and Allowances - - - -	£. 815 - -			
Lieutenant Assisting - - - -	1	Allowance for Lodging - - - -	50 - -			
Porter - - - - -	1	Wages - - - - -	57 4 -			
Messenger - - - - -	1	Ditto - - - - -	52 2 10			
				974 6 10		
		Moiety to be paid by the Admiralty - -	£.	487 3 5		
Paymaster, Acting as Clerk - - -	1	{ Salary, 300 l. (one-third of Salary to be paid by the Admiralty) - - - - - }		100 - -		
		House Rent; to be paid by the Admiralty - -		50 - -		
		Proportion to be paid by the Admiralty - -	£.	637 3 5		
Proportion to be paid by the Admiralty (the remainder by the Post Office, &c.) - - - - -					1,305 1 11	
Carried forward - - - - -				£.	3,541 12 8	

APPENDIX, No. 2.—EXPLANATORY STATEMENT (A. 2)—continued.

RANK.	Number.	DESCRIPTION OF PAY, &c.	ANNUAL AMOUNT.	TOTAL AMOUNT.	TOTAL AMOUNT of the Whole.
SPECIAL PAY AND ALLOWANCES—continued.			£. s. d.	£. s. d.	£. s. d.
		Brought forward - - -	- - -	3,541 12 8	
RIO DE JANEIRO:					
Master of Her Majesty's Ship "Egmont," at Rio de Janeiro - - -	1	{ Allowance, in addition to his Pay, for charge of Naval Stores - - - - - }	60 - -		
Surgeon of - - ditto - at ditto -	1	{ Allowance, in addition to his Pay, for charge of Medical Stores of the Squadron on South East Coast of America Station - - - - }	30 - -		
Paymaster of - ditto - at ditto -	1	{ Allowance, in addition to his Pay, for charge of Victualling Stores - - - - - }	60 - -	150 - -	
VALPARAISO:					
Staff Commander of Her Majesty's Ship "Nereus," Store Depôt at Valparaiso - - - - -	1	{ Allowance, in addition to his Pay, for charge of Naval Stores, including 10 <i>l.</i> in lieu of Stationery, &c., and 10 <i>l.</i> for Postage - - - - }	120 - -		
Assistant Surgeon of ditto - at ditto -	1	{ Allowance, in addition to his Pay, for charge of Medicines, &c., for issue to the Squadron on the Pacific Station - - - - - }	20 - -	140 - -	
ESQUIMALT (VANCOUVER'S ISLAND):					
Assistant Surgeon in charge of Temporary Naval Hospital at Esquimalt, borne in Her Majesty's Ship "Zealous" - - -	1	Allowance, in addition to his Pay, for charge of Stores	20 - -	20 - -	
TRINCOMALEE:					
Surgeon (additional), borne in Her Majesty's Ship "Octavia" - - - -	1	{ Allowance, in addition to his Pay, for charge of Naval Medical Depôt - - - - - }	30 - -	30 - -	
YOKOHAMA. (JAPAN):					
Surgeon (additional), borne in Her Majesty's Ship "Princess Royal" - - -	1	{ Allowance, in addition to his Pay, in lieu of Stationery, for Service at Sick Quarters - - - - }	2 2 -	2 2 -	
SHANGHAI:					
Paymaster (additional), borne in Her Majesty's Ship "Acorn" - - - -	1	{ Allowance, in addition to his Pay, for Charge of Naval and Victualling Stores, including 15 <i>l.</i> in lieu of Stationery - - - - - }	115 - -		
Assistant Paymaster of ditto - - -	1	{ Allowance, in addition to his Pay, for Residence on Shore - - - - - }	100 - -		
Yeomen of Store-rooms (additional), borne in ditto - - - -	2	{ Allowance to each, in addition to his Pay, of 1 <i>s.</i> a day, or 18 <i>l.</i> 5 <i>s.</i> a year, as Assistant Store Issuers in the Naval Yard - - - - - }	36 10 -	251 10 -	
ASCENSION:					
Cooks employed in the Mountain and Garrison Hospitals at Ascension, borne in Her Majesty's Ship "Flora" - - -	2	{ Allowance to each, in addition to his Pay, of 1 <i>s.</i> a day, or 18 <i>l.</i> 5 <i>s.</i> a year - - - - - }	36 10 -		
Baker at Ascension, borne in ditto - - -	1	{ Allowance, in addition to his Pay as Captain's Cook, of 1 <i>s.</i> a day, or 18 <i>l.</i> 5 <i>s.</i> a year - - - - }	18 5 -		
Assistant Baker - ditto - ditto - -	1	{ Allowance, in addition to his Pay as Ordinary Seaman, of 9 <i>d.</i> a day, or 13 <i>l.</i> 13 <i>s.</i> 9 <i>d.</i> a year - - }	13 13 9		
Corporal of Royal Marines at Ascension, borne in ditto - - - -	1	{ Allowance, in addition to his Pay, for acting as Schoolmaster on Shore - - - - - }	16 - -	84 8 9	
		Carried forward - - - £.	- - -	4,219 13 5	

APPENDIX, No. 2.—EXPLANATORY STATEMENT (A. 2)—continued.

RANK.	Number.	DESCRIPTION OF PAY, &c.	ANNUAL AMOUNT.	TOTAL AMOUNT.	TOTAL AMOUNT of the Whole.
SPECIAL PAY AND ALLOWANCES—continued.			£. s. d.	£. s. d.	£. s. d.
HER MAJESTY'S SHIP "EXCELLENT":					
Brought forward - - -			- - -	4,219 13 5	
Mathematical and Naval Instructors -	2	{ Allowance to each, in addition to his Pay, of 160 l. a year, in lieu of 5 l. a year for each young gentleman instructed - - - - - }	320 - -		
Naval Instructor at the Royal Naval College - - - - - }	1	{ Allowance, in addition to his Pay, in lieu of House-rent and Tuition Money - - - - - }	140 2 6		
Naval Schoolmaster - - - - -	1	Allowance in addition to his Pay - - - - -	20 - -		
				480 2 6	
HER MAJESTY'S SHIP "BRITANNIA":					
Principal Naval Instructor - - -	1	{ Salary, in addition to his Pay, in lieu of 9 l. a year for each Naval Cadet instructed - - - - - }	250 - -		
Second Naval Instructor - - -	1	Ditto - - - - ditto - - - - ditto - - -	200 - -		
Junior Naval Instructors - - -	6	{ Allowance to each, in addition to his Pay, of 125 l. a year as Tuition Money - - - - - }	750 - -		
Acting Naval Instructors - - -	2	{ Allowance to each, in addition to his Pay, of 1 s. 6 d. a day, or 27 l. 7 s. 6 d. a year, in lieu of Tuition Money - - - - - }	54 15 -		
French and Drawing Masters - - -	2	{ Salary, at the rate of 400 l. a year each, for instructing Naval Cadets - - - - - }	800 - -		
Assistant French and Drawing Masters -	2	{ Salary, at the rate of 200 l. a year each, for instructing Naval Cadets - - - - - }	400 - -		
Steward of Naval Cadets' Mess - - -	1	{ Allowance, in addition to his Pay, of 8 d. a day, or 12 l. 3 s. 4 d. a year, for charge of Naval Stores supplied to the Mess - - - - - }	12 3 4		
Sailmaker - - - - -	1	{ Allowance, in addition to his Pay, of 6 d. a day, or 9 l. 2 s. 6 d. a year, for instructing Naval Cadets in Sailmaking - - - - - }	9 2 6		
				2,476 - 10	
HER MAJESTY'S TRAINING SHIPS:					
Chaplains and Naval Instructors of Her Majesty's Training Ships for Boys, viz:—"St. Vincent," "Boscawen," "Impregnable," "Implacable," and "Ganges" - - - - - }	5	{ Allowance to each, in addition to his Pay, of 60 l. a year, in lieu of Tuition Money - - - - - }	300 - -		
Qualified Pupil Teachers in the above Ships - - - - - }	15	{ For their Education and Maintenance while under Training at Chichester and Exeter Colleges, at the rate of 23 l. a year each Pupil Teacher - - - }	345 - -		
				645 - -	
HER MAJESTY'S SHIP "CUMBERLAND":					
Instructor of Engineers borne in Her Majesty's Ship "Cumberland" - - - }	1	{ Pay, at the rate of 450 l. a year, inclusive of all Allowances for Instructing Engineers in Steam Reserve, at Sheerness - - - - - }	450 - -		
				450 - -	
LODGING MONEY:					
Secretary to Commander in Chief at Devonport - - - - - }	1	Lodging Money - - - - -	50 - -		
Secretary to the Rear Admiral commanding at Cork - - - - - }	1	Ditto - - - - -	50 - -		
Secretary to Commodore Superintendent at Woolwich - - - - - }	1	Ditto - - - - -	50 - -		
Carried forward - £.			150 - -	8,270 16 9	

APPENDIX, No. 2.—EXPLANATORY STATEMENT (A. 2)—*continued.*

R A N K.	Num- ber.	DESCRIPTION OF PAY, &c.	ANNUAL AMOUNT.	TOTAL AMOUNT.	TOTAL AMOUNT of the Whole.
SPECIAL PAY AND ALLOWANCES— <i>continued.</i>			£. s. d.	£. s. d.	£. s. d.
Lodging Money— <i>continued.</i>		Brought forward - - -	150 - -	8,270 16 9	
Harbour Master at Portland, borne in Her Majesty's Ship "Asia" - - -	1	Lodging Money - - - - -	50 - -		
Harbour Master at Falmouth, borne in Her Majesty's Ship "Royal Ade- laide" - - - - -	1	Ditto - - - - -	50 - -		
Lieutenants of "Bullfrog" and "Fervent," tenders to "Castor" and "Dædalus," Drill ships - - - - -	2	Ditto to each of 50 l. a year - - - - -	100 - -		
Surgeons of Drill Ships of the Royal Naval Reserve - - - - -	7	Ditto - - - - ditto - - - - -	350 - -		
Paymasters of ditto - - - - -	8	Ditto - - - - ditto - - - - -	400 - -		
Captain (additional) of Her Majesty's Ship "Pembroke," for service as In- specter of the Royal Naval Reserve - -	1	Ditto at the rate of 4 s. 6 d. a day - - - - -	82 2 6		
Captain of Her Majesty's Ship "Aurora," employed on special service on the Lakes of Canada - - - - -	1	Ditto at the rate of 2 l. a week - - - - - (See also "Various Allowances.")	104 - -		
Petty Officer in charge of the Tank Vessel at Simon's Bay, borne in Her Majesty's Ship "Seringapatam" - - - - -	1	Lodging Money - - - - -	12 - -		
Stokers employed on shore at the Port- land Coal Depôt, borne in Her Ma- jesty's Ship "St. George" - - -	4	{ Ditto to each, at the rate of 6 d. a day, or 9 l. 2 s. 6 d. } a year - - - - -	36 10 -	1,334 12 6	
VARIOUS ALLOWANCES :					
Ward-room Officers of certain Ships, for messing Gun-room Officers, who have no distinct Mess on board of their own	-	{ Difference between the Subscriptions paid by Gun- room Officers, and Ward-room Officers, to their re- spective Messes - - - - -	2,200 - -		
Captain of Her Majesty's Ship "Aurora," employed on special service on the Lakes of Canada - - - - -	1	Extra Pay, at the rate of 7 s. a day - - - - - (See also "Lodging Money.")	127 15 -		
Master of Her Majesty's Ship "Pigmy"	1	{ Allowance, in addition to his Pay, for charge of } Victualling Stores, there being no Assistant Pay- master in charge - - - - -	75 - -		
Staff Commander of Her Majesty's Yacht "Victoria and Albert" - - - -	1	{ Allowance, in addition to his Pay, for charge of the } State Furniture on board the Royal Yacht - - -	50 - -		
Ward-room Steward of ditto - - -	1	{ Allowance, in addition to his Pay, for charge and } proper keeping of Government Plate - - - -	10 - -		
Second Masters in Her Majesty's Gun- boats - - - - -	32	{ Allowance to each, in addition to his Pay, of 60 l. a } year, for charge of Paymasters' and Warrant Offi- cers' Stores and Accounts, there being no Officer of either of those Ranks borne in Gunboats - -	1,920 - -		
Surgeon-Superintendents in Convict Ships, not being Commissioned Ships - -	2	{ Pay as follows, viz. : one Staff Surgeon, at 24 s. a day, } and one Surgeon, at 22 s. a day - - - - -	839 10 -		
Writers, borne in Her Majesty's Ships "Asia," "Canopus," "Cumberland," "Duke of Wellington," "Excellent," "Indus," and "Wellesley" - - -	13	Pay to each, at the rate of 4 s. a day, or 73 l. a year -	949 - -		
Ditto - borne in Her Majesty's Ship "Egmont" - - - - -	1	Pay at the rate of 4 s. 6 d. a day, or 82 l. 2 s. 6 d. a year	82 2 6		
Carried forward - - - £.			6,253 7 6	9,605 9 3	

APPENDIX, No 2.—EXPLANATORY STATEMENT (A. 2)—continued.

RANK.	Num- ber.	DESCRIPTION OF PAY, &c.	ANNUAL AMOUNT.	TOTAL AMOUNT.	TOTAL AMOUNT of the whole.
SPECIAL PAY AND ALLOWANCES—continued.			£. s. d.	£. s. d.	£. s. d.
Various Allowances—continued.					
		Brought forward - - -	6,253 7 6	9,605 9 3	
Lithographer employed in the Office of the Commander-in-Chief at Portsmouth, borne in Her Majesty's Ship "Vic- tory" - - - - -	1	Pay, at the rate of 1 l. 1 s. a week - - - -	54 12 -		
Ship's Corporal of Her Majesty's Ship "Impregnable" - - - - -	1	{ Allowance, in addition to his Pay, of 6 d. a day, or 9 l. 2 s. 6 d. a year, for instructing the Band Boys in Music - - - - - }	9 2 6		
Qualified Pilots for Channel Islands, borne in Her Majesty's Ship "Dasher" - - -	14	{ At Rates of Pay, according to their Classes, viz.: 1st Class, 3, at 5 s. a day, or 91 l. 5 s. a year; 2nd Class, 3, at 4 s. 6 d. a day, or 82 l. 2 s. 6 d. a year; 3rd Class, 3, at 4 s. a day, or 73 l. a year; also, allow- ances to the following qualified men as Pilots, in addition to the Pay of their Ratings, viz.: 1st Class, 1, at 1 s. 6 d. a day, or 27 l. 7 s. 6 d. a year; 2nd Class, 1, at 1 s. a day, or 18 l. 5 s. a year; 3rd Class, 3, at 6 d. a day, or 9 l. 2 s. 6 d. a year - }	812 2 6		
Riggers, borne on the Books of Ports- mouth Dockyard - - - - -	-	{ Proportion of their Pay, for the time they are em- ployed Afloat, as additions to the Complements of the Royal Yachts - - - - - }	2,500 - -		
HER MAJESTY'S COAST GUARD SERVICE:				9,629 4 6	
Senior Mates in command of Tenders (Cruisers) to Coast Guard ships - - -	21	{ Allowance to each, in addition to his Sea Pay, to make up the Amount he was in receipt of prior to the transfer of the Coast Guard to the Admiralty, viz., 1 s. 6 d. a day, or 27 l. 7 s. 6 d. a year - }	574 17 6		
Senior Mates of Tenders (Cruisers) as above, not in command - - - - -	5	{ Allowance to each, in addition to his Sea Pay, as above, viz., 6 d. a day, or 9 l. 2 s. 6 d. a year - }	45 12 6		
Second Mates of Tenders (Cruisers) as above, not in command - - - - -	16	{ Allowance to each, in addition to his Sea Pay, as above, viz., 1 s. a day, or 18 l. 5 s. a year - - }	292 - -		
Chief Quartermasters in command - - -	2	{ Allowance to each, in addition to his Pay, as above, viz., 1 s. 1 d. a day, or 19 l. 15 s. 5 d. a year - }	39 10 10		
Inspecting Lieutenants, and Lieutenants commanding Coast Guard Stations on Shore - - - - -	5	{ Allowance to each, in addition to his Pay, as above, viz. 1 s. a day, or 18 l. 5 s. a year - - - }	91 5 -		
Masters commanding ditto - - - - -	3	{ Allowance to each, in addition to his Pay, as above, viz., 1, at 2 s. a day, or 36 l. 10 s. a year; 2 at 1 s. a day, or 18 l. 5 s. a year - - - - - }	73 - -		
				1,116 5 10	

TOTAL SPECIAL PAY and ALLOWANCES (INCLUDING 1,116 l. 5 s. 10 d., FOR COAST GUARD SERVICE), AS PROVIDED FOR IN THE BODY OF THE ESTIMATE, p. 7. - - - - - £. 20,350 19 7

APPENDIX, No. 3.

A RETURN showing the Number of Officers, Men and Boys MORE or LESS Borne than Voted during the present Financial Year.

FOR HER MAJESTY'S FLEET:

MONTH.	NUMBER VOTED.	NUMBER BORNE.							Number More or Less Borne than Voted.	
		Officers and Seamen.	Boys (including those for Training).	TOTAL.	Marines (including those Serving in the Coast Guard Ships).			Total of all Classes.	More.	Less.
					Afloat.	On Shore.	TOTAL.			
1866:										
April - -	Seamen - - 37,300 } Boys - - 7,000 } (Including 2,750 for training). Marines { Afloat - 8,000 } { On Shore, 8,400 } 16,400	37,423	6,928	44,351	7,472	8,693	16,165	60,516	-	184
May - -		37,021	6,883	43,904	7,259	8,944	16,203	60,107	-	593
June - -		36,741	7,041	43,782	7,115	9,167	16,282	60,064	-	636
July - -		36,759	7,055	43,814	7,080	9,214	16,294	60,108	-	592
August - -		36,726	6,991	43,717	7,159	9,114	16,273	59,990	-	710
September - -		36,711	6,953	43,664	7,148	9,123	16,271	59,935	-	765
October - -		36,649	6,956	43,605	7,086	9,178	16,264	59,869	-	831
November - -		36,665	6,783	43,448	7,427	8,883	16,310	59,758	-	942
December - -		36,869	6,786	43,655	7,449	8,894	16,343	59,998	-	702

FOR HER MAJESTY'S COAST GUARD:

PERSONS Borne on SHIPS' BOOKS for Service Afloat and On Shore:

MONTH.	NUMBER VOTED.	NUMBER BORNE.					Number More or Less Borne than Voted.	
		Afloat.			On Shore.	Total Afloat and On Shore.		
		Officers and Men.	Boys.	TOTAL.	Officers and Men.		More.	Less.
1866:								
April - -	Afloat { Seamen - 2,614 } { Boys - 336 } 2,950	2,474	253	2,727	4,119	6,846	-	304
May - -		2,497	261	2,758	4,098	6,856	-	294
June - -		2,496	252	2,748	4,123	6,871	-	279
July - -		2,514	254	2,768	4,169	6,937	-	213
August - -	On Shore - Officers and Men - 4,200	2,532	253	2,785	4,205	6,990	-	160
September - -		2,525	248	2,773	4,220	6,993	-	157
October - -		2,507	223	2,730	4,215	6,945	-	205
November - -		2,555	236	2,791	4,209	7,000	-	150
December - -	7,150	2,571	231	2,802	4,281	7,083	-	67

CADETS.—Number of CADETS, 1st Class, admitted into the Royal Navy in the Year ended 31st December 1866 - - 160

APPENDIX, No. 4.

A COMPARATIVE STATEMENT showing the Number of Ships and Vessels in Commission on 1st December 1865 and on 1st December 1866.

RATES, &c.	1 December 1865.		TOTAL.	1 December 1866.		TOTAL.	1866.	
	Sailing.	Steam.		Sailing.	Steam.		More.	Less.
SEA-GOING :								
Line of Battle Ships - - - - -	-	7	148	-	4	152	-	3
Armour Plated Ships - - - - -	-	12		-	16		4	-
Frigates and Corvettes - - - - -	-	38		-	34		-	4
Sloops and small Vessels - - - - -	-	91		-	98		7	-
TOTAL EFFECTIVE, for GENERAL SERVICE -	-	148	148	-	152	152	11	7
4 more.								
Gunnery, and Training Ships - - - - -	8	-	58	8	-	59	-	-
Stationary, Receiving, and Depôt Ships (including) 1 Armour Plated Ship and Royal Yachts) - - - - -	21	6		21	6		-	-
Surveying Vessels - - - - -	-	4		-	4		1	-
Troop Ships - - - - -	-	4		-	5		-	-
Store Ships - - - - -	-	7	41	-	7	45	-	-
Drill Ships (Royal Naval Reserve) - - - - -	8	-		8	-		-	-
Tenders - - - - -	8	33		10	35		4	-
TOTAL FLEET, including TENDERS - - - - -	45	202	247	47	209	256	16	7
9 more.								
Guard Ships of the Coast Guard - - - - -	-	10	73	-	10	69	-	-
Tenders, including Cruisers - - - - -	45	18		41	18		-	4
TOTAL FLEET and COAST GUARD, including TENDERS - - - - -	90	230	320	88	237	325	16	11
NET TOTAL } 5 more.								

APPENDIX, No. 5.

EXPLANATORY STATEMENT (B.) of the EXPENSE of 16,400 ROYAL MARINES, as provided for in the NAVY ESTIMATES, for 1867-68, page 7.

RANK.	Number.	PAY OF EACH RANK.			Total Number.	TOTAL AMOUNTS.
		Daily.	Annual.	For the Whole.		
		£. s. d.	£. s. d.	£. s. d.		£. s. d.
Inspector General of Royal Marines (in addition to his unattached Pay as Major-General of Royal Marines) - - - - -	-	1 17 11	691 19 7	691 19 7		
Captain, Royal Marines, attached to the above for Military Duties and Correspondence (in addition to his Pay as Captain) - - -	-	- 9 6	173 7 6	173 7 6		
GENERAL STAFF:						
Deputy Adjutant-General (in addition to his unattached Pay as Major-General of Royal Marines) - - - - -	1	1 17 11	691 19 7	691 19 7		
Assistant Adjutant-General (including rate of Half-pay of his Regimental Rank) - - -	1	1 10 -	547 10 -	547 10 -		
REGIMENTAL STAFF:						
Colonel Commandant (Artillery) - - -	1	2 - -	730 - -	730 - -		
Colonels Commandant (Light Infantry) - -	4	1 18 6	702 12 6	2,810 10 -		
Colonel, Second Commandant (Artillery) -	1	1 6 3	479 1 3	479 1 3		
Colonels, Second Commandant (Light Infantry) - - - - -	4	1 - -	365 - -	1,460 - -		
Colonels, Aides-de-Camp to Her Majesty (2), additional Pay - - - - -	-	- 10 -	182 10 -	365 - -		
Lieutenant-Colonels of Artillery - - -	4	- 17 11	326 19 7	1,307 6 -		
Lieutenant-Colonels (Light Infantry) - -	16	- 17 -	310 5 -	4,964 - -		
Captain superintending Laboratory - - -	1	- 12 1	220 10 5	220 10 5		
Ditto (in addition to his Pay as Captain) -	1	- 5 -	91 5 -	91 5 -		
Captains - Gunnery Instructors - - -	3	- 11 7	211 7 11	634 3 9		
Ditto - Brevet Lt. Col., ditto - - -	1	- 16 -	292 - -	292 - -		
Ditto - Ditto Musketry Instructor - - -	1	- 16 -	292 - -	292 - -		
Ditto - Brevet Major, ditto - - -	1	- 13 7	247 17 11	247 17 11		
Ditto - Musketry Instructors - - -	2	- 11 7	211 7 11	422 15 10		
Ditto - ditto - - - - -	1	- 12 1	220 10 5	220 10 5		
Ditto - Gunnery Instructors - - -	2	- 12 1	220 10 5	441 - 10		
Divisional Paymasters - - - - -	5	- - -	300 - -	1,500 - -		
Barrack Masters.—Voted under "Marine Divisions," Vote 9 - - - - -	5	- - -	- - -	- - -		
Deputy Inspectors General of Hospitals - - - - -	2	- - -	- - -	- - -		
Staff Surgeons - - - - -	2	- - -	- - -	- - -		
Surgeon - - - - -	1	- - -	- - -	- - -		
Assistant Surgeons - - - - -	10	- - -	- - -	- - -		
Lieutenants and Adjutants, Light Infantry -	8	Pay - 7 6 Additional 6 6	136 17 6 118 12 6	1,095 - - 949 - -		
Ditto - - - - - Artillery - - -	2	Pay - 7 10 Additional 6 6	142 19 2 118 12 6	285 18 4 237 5 -		
Lieutenants and Quartermasters, Light Infantry	4	Pay - 7 6 Additional 4 8	136 17 6 85 3 4	547 10 - 340 13 4		
Ditto - - - - - Artillery - - -	1	Pay - 7 10 Additional 4 8	142 19 2 85 3 4	142 19 2 85 3 4		
Quartermasters, Light Infantry - - -	3	- 8 6	155 2 6	465 7 6		
Ditto - - - - - ditto - - -	1	- 6 6	118 12 6	118 12 6		
Ditto - - - - - Artillery - - -	1	- 9 4	170 6 8	170 6 8		
Serjeants-Major, Artillery - - -	2	- 4 3 ⁴	77 18 10	155 17 8		
Ditto - - - Light Infantry - - -	8	- 3 4	60 16 8	486 13 4		
Quartermaster Serjeant, Artillery - - -	1	- 3 9 ¹	68 16 4	68 16 4		
Ditto - - - - - Light Infantry - - -	4	- 2 8	48 13 4	194 13 4		
Barrack Serjeant, Artillery - - -	1	- 2 10	51 14 2	51 14 2		
Ditto - - - - - Light Infantry - - -	4	- 2 -	36 10 -	146 - -		
Schoolmaster Serjeants, Artillery - - -	1	- 3 6	63 17 6	63 17 6		
Ditto - - - - - ditto - - -	2	- 3 -	54 15 -	109 10 -		
Ditto - - - - - Light Infantry - - -	1	- 4 6	82 2 6	82 2 6		
Ditto - - - - - ditto - - -	2	- 4 -	73 - -	146 - -		
Ditto - - - - - ditto - - -	1	- 3 6	63 17 6	63 17 6		
Ditto - - - - - ditto - - -	4	- 3 -	54 15 -	219 - -		
Messenger in Deputy Adjutant-General's Office - - -	-	- - -	- - -	75 - -		
Necessary Woman - - - - -	-	- - -	- - -	40 - -		
					120	24,923 - -
COMMISSIONED OFFICERS OF LIGHT INFANTRY:						
Captains { having higher rank as Brevet Majors -	3	- 16 -	292 - -	876 - -		
ditto - - - - - ditto - - -	9	- 13 7	247 17 11	2,231 1 3		
not having - - - - - ditto - - -	104	- 11 7	211 7 11	21,985 3 4		
First Lieutenants { above seven years' service -	51	- 7 6	136 17 6	6,980 12 6		
under - - - - - ditto - - -	104	- 6 6	118 12 6	12,337 - -		
Second Lieutenants - - - - -	77	- 5 3	95 16 3	7,377 11 3		
					348	51,787 - -
Carried forward - - - - -					468	76,710 - -

APPENDIX, No. 5.—EXPLANATORY STATEMENT (B.)—continued.

R A N K.	Number.	PAY OF EACH RANK.			Total Number.	TOTAL AMOUNT.
		Daily.	Annual.	For the Whole.		
		£. s. d.	£. s. d.	£. s. d.		
Brought forward - - - - -	- - - - -	- - - - -	- - - - -	- - - - -	468	76,710 - -
COMMISSIONED OFFICERS OF ARTILLERY:						
Captains { having higher rank as Brevet Majors -	5	- 14 1	257 - 5	1,285 2 1	72	11,497 - -
{ not having - ditto - - - - -	19	- 12 1	220 10 5	4,189 17 11		
First Lieutenants { above seven years' service -	12	- 7 10	142 19 2	1,715 10 -		
{ under - - - ditto - - - - -	28	- 6 10	124 14 2	3,491 16 8		
Second Lieutenants - - - - -	8	- 5 7	101 17 11	815 3 4		
NON-COMMISSIONED OFFICERS AND PRIVATES OF LIGHT INFANTRY:						
Provost Serjeants - - - - -	4	- 2 8	48 13 4	194 13 4	12,764	251,883 - -
Colour Serjeants - - - - -	116	- 2 6	45 12 6	5,292 10 -		
Serjeants - - - - -	572	- 2 -	36 10 -	20,878 - -		
Armourer Serjeants - - - - -	4	- 5 -	91 5 -	365 - -		
Corporals { above 14 years' service - - - - -	696	- 1 4	24 6 8	16,936 - -		
{ under - ditto - - - - -	15	- 1 2	21 5 10	319 7 6		
Privates { above - ditto - - - - -	11,009	- 1 -	18 5 -	200,914 5 -		
{ under - ditto - - - - -	91	- 1 1 ³ / ₄	20 18 2 ³ / ₄	1,902 18 10		
Drummers { above - ditto - - - - -	257	- 1 1	19 15 5	5,081 2 1		
{ under - ditto - - - - -	-	-	-	-		
NON-COMMISSIONED OFFICERS AND GUNNERS OF ROYAL MARINE ARTILLERY:						
Serjeants attending Laboratory - - - - -	2	- 2 10	51 14 2	103 8 4	3,096	81,492 - -
Colour Serjeants - - - - -	24	- 3 4	60 16 8	1,460 - -		
Provost Serjeants - - - - -	1	- 3 6	63 17 6	63 17 6		
Serjeants - - - - -	165	- 2 10	51 14 2	8,531 17 6		
Corporals { above 14 years' service - - - - -	-	-	-	-		
{ under - ditto - - - - -	144	- 2 2	39 10 10	5,694 - -		
Bombardiers { above - ditto - - - - -	120	- 2 -	36 10 -	4,380 - -		
{ under - ditto - - - - -	9	- 1 5 ¹ / ₄	26 4 8 ¹ / ₄	236 2 2		
Gunners { above - ditto - - - - -	2,559	- 1 3 ¹ / ₄	23 3 10 ¹ / ₄	59,350 1 9		
{ under - ditto - - - - -	1	- 1 5 ¹ / ₄	26 4 8 ¹ / ₄	26 4 8		
Drummers { above - ditto - - - - -	71	- 1 3 ¹ / ₄	23 3 10 ¹ / ₄	1,646 13 7		
{ under - ditto - - - - -	-	-	-	-		
Beer Money for 8,500 Men on Shore - - - - -	-	-	-	-	-	12,927 - -
Excess Cost of Bread and Meat, beyond the 4 ¹ / ₂ d. a day charged as the fixed Price for the Com- pound Ration - - - - -	-	-	-	-	-	13,000 - -
Good Conduct Pay for 6,573 Men - - - - -	-	-	-	-	-	16,356 - -
Colonial or Double Personal Pay of Marines in San Juan - - - - -	-	-	-	-	-	2,000 - -
MARINE CONTINGENT EXPENSES AND ALLOWANCES; viz.:						
Allowances to Pay-Captains; to Marines acting as Divisional Clerks and Savings Banks' Clerks; Allowances in aid of Divisional Mess, Forage Money; Non-effective and Contingent Allowances to the Officers of the Marine Artillery having the Command of Companies; Petty Allowances to Officers of Marines; Lodging-Money, March- ing Money, Billet Money, &c. &c. - - - - -					-	21,000 - -
PRIZES FOR GOOD SHOOTING AT THE FIVE DIVISIONS:						
Marksmen { 5 First Prizes - - - - -	-	-	-	22 16 3	-	783 - -
{ 50 Second ditto - - - - -	-	-	-	152 1 8		
{ 400 Third ditto - - - - -	-	-	-	608 6 8		
RECRUITING EXPENSES:						
Expenses (exclusive of Levy Money) on account of Recruits to be raised at Recruiting Stations - - - - -					6,806 - -	-
Levy Money for 1,570 Recruits, at £. 3. 6 s. each - - - - -					5,181 1 -	
RECRUITS ENLISTED AT HEAD QUARTERS:					£.	
Privates - { Ordinary - 159 Recruits, at £. 2. 9 s. 6 d. - - - - -	-	-	-	393 - -	17,300 - -	
{ Militia - - - - -	-	-	-	-		
Drummers raised to ranks, 8 at £. 2. 2 s. 0 d. each - - - - -	-	-	-	16 16 -		
Ditto (attestation) - 63 at 0. 1 s. 0 d. ,, - - - - -	-	-	-	3 3 -		
Bounty for 700 Marines re-enlisting for further service, at £. 3 per Man - - - - -					2,100 - -	-
Free Kit for 700 Marines, at £. 4 per Man - - - - -					2,800 - -	
TOTAL - - - - -					16,400	504,948 - -

APPENDIX, No. 6.

A. RETURN, giving the ITEMS of EXPENDITURE in the Year 1865-66, the last Financial Year closed, on account of MARINE CONTINGENCIES and ALLOWANCES.

	£.	s.	d.
Allowances to Pay Captains - - - - -	678	9	-
Ditto to Marines acting as Divisional Clerks - - - - -	2,452	7	9
Forage Money - - - - -	2,358	3	6
Non-effective and Contingent Allowances to Officers of Artillery having the command of Companies, and Petty Allowances to Officers of Marines - }	876	-	-
Billet and Lodging Money, Marching Money, Conduct Money, and Family Allowances - - - - - }	7,667	4	8
Allowances to Quartermasters, Adjutants, and Acting Ditto - - - - -	694	4	-
Allowances in Aid of Divisional Mess - - - - -	2,150	-	-
Contingent Allowances to Officers and Men; per centage to Divisional Paymasters on their Disbursements; Allowance for House-rent to the Staff of the Royal Marine Office, and Sundry Contingent Expenses - - - }	5,882	15	1
TOTAL EXPENDITURE for the Year 1865-66 - - - £.	22,759	4	-

APPENDIX, No. 7.

STATEMENT of the whole Charge on Account of the CORPS of ROYAL MARINES, included under the several VOTES of the ESTIMATES.

	Under Vote.	
	No.	£.
For the Wages, &c., of the Marines - - - - -	1	504,948
For Victuals and Clothing of the Marines - - - - -	2	219,756
For Salaries, Contingent Expenses, and Wages of Matrons, Nurses, &c., and of the Metropolitan Police Force at the several Marine Infirmaries - - - - - }	8	12,883
For Salaries and Contingent Expenses of the Establishments at the several Marine Divisions - - - - - }	9	17,448
For new Works, and Repairs of Buildings at the Marine Divisions and Infirmaries - - - - - }	11	60,360
For Medical Attendance, Medicines, &c. - - - - -	12	12,000
For Half Pay of Marine Officers - - - - -	15	56,373
For Pensions, viz.:		£.
To Marine Officers for Good and Meritorious Services -	600	
To Marines for Conspicuous Bravery - - - - -	20	
To Commissioned and Non-Commissioned Officers for Wounds - - - - -	1,261	
To Widows and Relatives of Marine Officers Slain, &c. -	285	
To Widows of Marine Officers - - - - -	11,534	
Naval Pensions and Gratuities to Marines - - - - -	98,609	
	16	112,309
	(Sec. 1.)	
TOTAL - - - - - £.		996,077

APPENDIX, No. 8.

STATEMENT showing the APPROPRIATION of the MESSENGERS, &c., in the DEPARTMENTS of the PRINCIPAL OFFICERS, &c.

DEPARTMENT, &c.	NUMBER.							Number of Persons attended upon.	Number of Rooms and Repositories attended.
	MESSENGERS					Labourers and Temporary Labourers.	TOTAL.		
	On Salary.			Fixed Salary, and Day Pay.	Boys.				
	1st Class.	2nd Class.	3rd Class.						
Controller of the Navy - -	1	1	2	1	1	1	7	52	30
Accountant General - - -	2	4	13	2	2	2	25*	197	92
Storekeeper General - - -	-	1	1	-	1	-	3	31	30
Comptroller of Victualling -	1	2	5	-	-	1	9	59	34
Medical Director General - -	1	-	2	-	-	-	3	17	18
Director of Transports - - -	-	1	3	-	1	-	5	29	13
Director of Works - - - -	-	1	1	-	-	-	2	19	9
Registrar of Contracts - - -	-	-	1	-	-	-	1	10	7
Director of Education for the Admiralty - - - - -	(Attended by a Messenger of the Accountant General's Department)							1	2
	5	10	28	3	5	4	55	415	234
Head Messenger - - - -	-	-	-	On Fixed Salary. 1	-	-	14	—	—
Keeper of Printed Forms, and Assistants (Storekeeper General's Department) - - -	1	1	-	-	-	1			
Out-door Messengers - - -	-	-	-	4	-	-			
Boy to attend Telegraph - -	-	-	-	-	1	-			
Porter - - - - -	-	1	-	-	-	-			
Assistant Porter - - - -	-	1	-	-	-	-			
Postman - - - - -	-	1	-	-	-	-	14	—	—
Lamplighter - - - - -	-	-	1	-	-	-			
Deptford and Woolwich, Messenger - - - - -	-	-	-	On Fixed Salary. 1	-	-	14	—	—
TOTAL NUMBER - - -	6	14	29	9	6	5	69	—	—

* Several employed tracing Muster Books.

APPENDIX, No. 9.

STATEMENT of the EXPENDITURE in the Year 1865-66, (the last Financial Year closed,) for REWARDS, EXPERIMENTS, &c., for SCIENTIFIC PURPOSES.

	£.	s.	d.
Expenses incurred in connection with the Time Signal Ball at Deal, viz. :—			
Pay of Attendants - - - - -	67	10	-
Erection of a Fence, Alterations, and Repairs at Time Ball Tower - - - - -	113	13	-
Chronometer Maker's Bill for Repairs to Instruments - -	7	17	6
Small Bills and Contingencies - - - - -	8	18	10
	197	19	4
Allowance to Optician for Managing the Time Ball at Mount Wise, Devonport - - - - -	25	-	-
Gratuity to Mr. Hugh Breen for reducing Dr. Bradley's Observations -	50	-	-
	£.	272	19 4

APPENDIX, No. 10.

STATEMENT of the RATES of SURVEYING PAY and LODGING MONEY of SURVEYING OFFICERS, provided for in the Estimates of 1867-68.

RANK.	Surveying Pay (Daily Rate).		Lodging Money (Daily Rate).	
	At Home.	Abroad.	At Home.	Abroad.
In Charge of Surveys:	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Captains - - - - -	- 13 6	1 - -	- 4 6	- - -
Commanders - - - - -	- - -	1 - -	- - -	- 7 -
Staff Commanders - - -	- 13 6	- - -	- 3 6	- - -
Masters - - - - -	- 10 -	- 15 -	- 3 6	3 s. 6 d. to 6 s.
Assistant Surveyors:				
Commanders - - - - -	- 7 -	- - -	- 4 6	- - -
Lieutenants - - - - -	- - -	4 s. to 6 s.	- - -	- - -
Masters - - - - -	- 7 -	6 s. to 8 s.	- 3 6	3 s. 6 d. to 6 s.
Paymasters - - - - -	- 7 -	- - -	- 3 6	- - -
Sub-Lieutenants - - -	- - -	- 2 6	- - -	- - -
Second Masters - - -	- 2 -	2 s. 6 d. to 6 s.	- 2 6	- 5 -
Midshipmen - - - - -	- - -	- 2 6	- - -	- - -
Masters' Assistants - -	- - -	2 s. 6 d. to 4 s.	- - -	- - -

APPENDIX, No. 11.

Note.—SHOWING THE SURVEYS IN PROGRESS.

HOME.	FOREIGN.
England { East Coast.	Mediterranean.
West Coast.	Strait of Magellan.
Portsmouth.	North China and Japan.
Channel Islands.	China Sea Shoals.
	Bermuda Reefs.
	West Indies.
	Newfoundland.
	British Columbia.
	Cape of Good Hope.
	Victoria.
	New South Wales.
	Queensland.
	South Australia.
	Australia.

APPENDIX, No. 12.

STATEMENT of the NUMBER of STEAM SHIPS AFLOAT and BUILDING, and of the NUMBER of EFFECTIVE SAILING SHIPS, on 1st February 1867.

CLASSES OF SHIPS.	STEAM.			Effective Sailing Ships Afloat.	TOTAL Steam and Sailing.
	Afloat.	Building.	TOTAL.		
Armour-plated Ships, Iron, 3rd rates - - - Screw	9	1	10	-	10
Ditto - - - Wood, 3rd rates - - - "	7	-	7	-	7
Ditto - - - Iron, 4th rates - - - "	2	-	2	-	2
Ditto - - - Wood, 4th rates - - - "	1	1	2	-	2
Ditto - Turret Ships, Iron, 4th rates - - - "	1	1	2	-	2
Ditto - ditto - Wood, 4th rates - - - "	1	-	1	-	1
Ditto - ditto - Iron, 6th rates - - - "	2	-	2	-	2
Ditto - Corvettes, Iron, 6th rates - - - "	-	1	1	-	1
Ditto - ditto - Wood, 6th rates - - - "	2	-	2	-	2
Ditto - Sloops, Wood - - - - - "	2	-	2	-	2
Ditto - Gun Boats, Iron, and Iron and Wood - - - "	2	-	2	-	2
Ditto - ditto - ditto - - - - - Hydraulic	1	-	1	-	1
Ditto - Floating Batteries, Iron - - - Screw	3	-	3	-	3
Ditto - ditto - Wood - - - - - "	1	-	1	-	1
Ships of the Line - - - - - - - - - "	55	* 2	57	1	58
Frigates - - - - - - - - - "	37	1	38	7	45
Ditto - - - - - - - - - Paddle	4	-	4	-	4
Block Ships - - - - - - - - - Screw	2	-	2	-	2
Corvettes - - - - - - - - - "	22	2	24	-	24
Sloops - - - - - - - - - "	34	3	37	1	38
Ditto - - - - - - - - - Paddle	10	-	10	-	10
Small Vessels - - - - - - - - - "	10	-	10	-	10
Despatch Vessels - - - - - - - - - "	4	-	4	-	4
Gun Vessels - - - - - - - - - Screw	32	6	38	-	38
Gun Boats - - - - - - - - - "	95	2	97	-	97
Tenders, Tugs, &c. - - - - - - - - - "	8	1	9	-	9
Ditto - - - - - - - - - Paddle	39	1	40	-	40
Mortar Ships - - - - - - - - - Screw	2	-	2	-	2
Troop and Store Ships - - - - - - - - - "	14	-	14	-	14
Ditto - - - - - - - - - Paddle	1	-	1	-	1
Transports for India Reliefs - - - - - - - - - Screw	5	-	5	-	5
Yachts - - - - - - - - - - - "	1	-	1	-	1
Ditto - - - - - - - - - Paddle	5	-	5	-	5
Mortar Vessels and Floats - - - - - - - - - - -	-	-	-	29	29
TOTAL SCREW - - - - -	341	21	362	-	-
TOTAL PADDLE - - - - -	73	1	74	-	-
GRAND TOTAL - - - - -	414	22	436	38	474

* The building of 2 line-of-battle ships is suspended.

APPENDIX, No. 13.

PROGRAMME of SHIPBUILDING WORKS to be undertaken in HER MAJESTY'S
DOCKYARDS during the Year 1867-68.GENERAL SUMMARY, showing the Appropriation of Shipwrights proposed for the
Year 1867-68.

For Ships Building, and for completing new Ships Afloat, for Sea	}	2,688
Service - - - - -		
For Repairs and Refits to Sea-going and all other Ships, Casualties,	}	2,221
Yard Craft, Harbour and Dockyard Services, &c. &c., and for		
Maintenance of Ships in Reserve - - - - -		
TOTAL Strength - - - - -		4,909

Note.—The Abstract that follows refers only to the number of Shipwrights to be employed, the number of other Artificers being in proportion to the Shipwrights. The Scheme of Works must be considered as indicating only the probable employment of the Artificers of the Dockyards. The casual work is extremely uncertain, but provision has been made for meeting it as far as it can be foreseen. The Programme must therefore necessarily vary with the varying demands of the Service.

Controller's Office, }
7 February 1867. }

Robert Spencer Robinson.

ABSTRACT of the PROGRAMME of WORKS in the DOCKYARDS for 1867-68.

APPENDIX, No. 13.—Continued.

	DEPTFORD.		WOOLWICH.		CHATHAM.		SHEERNESS.		PORTSMOUTH.		DEVONPORT.		PEMBROKE.		TOTAL.	
	Tons ordered.	Number of Men.	Tons ordered.	Number of Men.	Tons ordered.	Number of Men.	Tons ordered.	Number of Men.	Tons ordered.	Number of Men.	Tons ordered.	Number of Men.	Tons ordered.	Number of Men.	Tons ordered.	Number of Men.
Iron-clad Frigates - - -	-	-	-	-	2,123	328	-	-	-	-	-	-	737	114	2,860	442
Iron-clad Turret Ship - -	-	-	-	-	2,072	321	-	-	-	-	-	-	-	-	2,072	321
Iron Frigate - - -	-	-	-	-	-	-	-	-	-	-	-	-	1,801	182	1,801	182
Converted Iron-clad Frigate -	-	-	1,393	166	-	-	-	-	-	-	-	-	-	-	1,393	166
Wood Corvettes - - -	638	65	227	23	-	-	-	-	-	-	-	-	-	-	865	88
Ships on the Stocks - - -	436	44	-	-	515	52	1,189	119	1,584	160	237	24	-	-	3,961	399
on the - - -	-	-	-	-	130	13	-	-	-	-	-	-	-	-	130	13
Gun Vessel - - -	-	-	-	-	-	-	704	71	1,617	162	1,119	112	-	-	4,062	408
Twin Screw Gun Vessels - -	622	63	-	-	406	44	-	-	1,389	138	926	92	348	37	4,113	421
Twin Screw Gun Boats - -	638	66	406	44	-	-	-	-	-	-	-	-	159	15	159	15
Surveying Vessel - - -	-	-	-	-	-	-	-	-	201	20	-	-	-	-	201	20
Gun Boats - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tug Steamer - - -	-	-	-	-	-	-	-	-	-	-	167	17	-	-	167	17
Yard Craft - - -	80	7	-	-	-	-	-	-	-	-	-	-	-	-	80	7
Completing for Sea Ships Afloat on 31st March 1867 -	-	-	654	64	-	-	-	-	380	38	646	87	-	-	1,680	189
TOTAL BUILDING - - -	2,414	245	2,680	297	5,246	758	1,893	190	5,171	518	3,095	332	3,045	348	23,544	2,688
Repairs and Refits to Sea-going and all other Ships, Casualties, Yard Craft, Harbour and Dockyard Services, &c. &c., and for Maintenance of Ships in Reserve - - -	-	50	-	363	-	187	-	314	-	715	-	525	-	58	-	2,221
GRAND TOTAL - - -	-	304	-	660	-	945	-	504	-	1,233	-	857	-	406	-	4,909
Established Men - - -	-	254	-	480	-	545	-	504	-	919	-	817	-	406	-	3,925
Hired Men - - -	-	50	-	180	-	400	-	-	-	314	-	40	-	-	-	984

APPENDIX, No. 13.—Programme of Shipbuilding Works, &c., 1867-68—*continued.*ABSTRACT of PROGRAMME of WORKS for NEW SHIPS BUILDING and COMPLETING for SEA,
not yet LAUNCHED.

Those marked thus * to be fully completed.

WOODEN VESSELS.

“Juno” Class :

* “Juno”	-	-	-	-	-	{ Deptford and Woolwich.
“Thalia,” to be	$\frac{2\frac{1}{4}}{8}$ ths,	built at	-	-	-	Woolwich.

“Blanche” Class :

* “Blanche”	-	-	-	-	-	Chatham.
* “Danuë”	-	-	-	-	-	Portsmouth.
* “Sappho”	-	-	-	-	-	Sheerness.
“Sirius,” to be	$\frac{6}{8}$ ths,	built at	-	-	-	Portsmouth.
“Spartan,” to be	$\frac{2\frac{3}{8}}{8}$ ths,	built at	-	-	-	Deptford.
“Tenedos,” to be	$\frac{1\frac{1}{2}}{8}$ ths,	built at	-	-	-	Devonport.
“Dido,” to be	$\frac{1\frac{1}{8}}{8}$ ths,	built at	-	-	-	Portsmouth.

“Plover” Class :

* “Plover”	-	-	-	-	-	{ Deptford and Woolwich.
* “Philomel”	-	-	-	-	-	ditto.
* “Bullfinch”	-	-	-	-	-	Sheerness.
* “Ringdove”	-	-	-	-	-	Portsmouth.
* “Lapwing”	-	-	-	-	-	Devonport.
“Magpie,” to be	$\frac{7}{8}$ ths,	built at	-	-	-	Portsmouth.
“Swallow,” to be	$\frac{6}{8}$ ths,	built at	-	-	-	ditto.
“Seagull,” to be	$\frac{6\frac{1}{2}}{8}$ ths,	built at	-	-	-	Devonport.
“Curlew,” to be	$\frac{3}{8}$ ths,	built at	-	-	-	Deptford.
“Vulture,” to be	$\frac{1\frac{1}{2}}{8}$ th,	built at	-	-	-	Sheerness.
“Woodlark,” frame to be converted	-	-	-	-	-	Chatham.
“Bittern,” frame to be converted	-	-	-	-	-	{ Pembroke Dock.

“Myrmidon” Class :

* “Myrmidon”	-	-	-	-	-	Chatham.
--------------	---	---	---	---	---	----------

“Newport” Class :

* “Newport,” surveying vessel	-	-	-	-	-	{ Pembroke Dock and Devonport.
-------------------------------	---	---	---	---	---	-----------------------------------

WOODEN VESSELS—*continued.*

60-horse power Gunboats :

* “Bruiser”	-	-	-	-	-	Portsmouth.
* “Cromer”	-	-	-	-	-	ditto.

Tug :

* “Carron”	-	-	-	-	-	Devonport.
------------	---	---	---	---	---	------------

Yard Craft :

* Woolwich Yard Craft, No. 14	-	-	-	-	-	Woolwich.
-------------------------------	---	---	---	---	---	-----------

COMPOSITE VESSELS.

Gunboats for China :

* “Thistle,” to be built at Deptford, and completed at	-	-	-	-	-	Woolwich.
* “Boxer,” to be built at Deptford, and completed at	-	-	-	-	-	ditto.
* “Dwarf,” to be built and completed at	-	-	-	-	-	ditto.
* “Beacon,” to be built and completed at	-	-	-	-	-	Chatham.
* “Cracker,” to be built and completed at	-	-	-	-	-	Portsmouth.
* “Avon,” to be built and completed at	-	-	-	-	-	ditto.
* “Elk,” to be built and completed at	-	-	-	-	-	ditto.
* “Flirt,” to be built and completed at	-	-	-	-	-	Devonport.
* “Fly,” to be built and completed at	-	-	-	-	-	ditto.
* “Gnat,” to be built at Pembroke Dock- yard and completed at	-	-	-	-	-	ditto.

IRON FRIGATE.

“Inconstant,” to be advanced to $\frac{3}{8}$ ths at	{	Pembroke Dock.
--	---	-------------------

IRON-CLAD FRIGATES AND TURRET SHIP.

“Hercules,” to be advanced to $\frac{6}{8}$ ths at	-	Chatham.
“Monarch,” to be advanced to $\frac{4\frac{3}{4}}{8}$ ths at	-	ditto.
“Penelope,” to be completed at	-	{ Pembroke Dock and Devonport.
“Repulse,” to be advanced to $\frac{6}{8}$ ths at	-	Woolwich.

N.B.—The programme also provides for finishing the
“Agincourt,” “Northumberland,” “Lord Warden,”
“Glasgow,” and “Daphne.”

APPENDIX, No. 13.—Programme of Shipbuilding Works, &c., 1867-68—continued.

DEPTFORD YARD.

Number of Slip.	Rate.	Guns.	Tonnage.	H. P.	NAME OF SHIP.	Probable State of Advancement of the Ship on the 31st March 1867.		To be Advanced in 1867-68.		Number of Men to be Employed in 1867-68.	REMARKS.	
						In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.	In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.			
BUILDING AND COMPLETING FOR SEA:												
4	Wood corvette.	6	1,459	400	"Juno" - -	$\frac{3}{8}$	547	$\frac{3\frac{1}{2}}{8}$	638	65	To launch. To com- plete for sea at Woolwich.	
3	Twin-screw gun-vessel.	3	663	160	"Philomel" - -	$\frac{2}{8}$	166	$\frac{4\frac{1}{2}}{8}$	373	38	To launch. To com- plete for sea at Woolwich.	
2	„ -	3	663	160	"Curlew" - -	-	-	$\frac{3}{8}$	249	25		
1	Sloop -	4	1,268	350	"Spartan" - -	-	-	$\frac{2\frac{3}{4}}{8}$	436	44		
5	Twin-screw composite gun-boat.	2	463	120	"Thistle" - -	$\frac{1}{8}$	58	$\frac{5\frac{1}{2}}{8}$	319	33	To launch. To com- plete for sea at Woolwich.	
In dock	„ -	2	463	120	"Boxer" - -	$\frac{1}{8}$	58	$\frac{5\frac{1}{2}}{8}$	319	33	To launch. To com- plete for sea at Woolwich.	
5	Yard craft	-	160	-	"Woolwich yard craft, No. 14."	$\frac{3}{8}$	60	$\frac{4}{8}$	80	7	To launch. To com- plete for sea at Woolwich.	
Additional Ships to complete for Sea (after Launching)							-	Nil	-	-		
TOTAL - - -									2,414	245		
Repairs, &c.:												
To repair and refit Yard Craft, Store Ships, &c.							-	-	-	-	32	
Houses, Mast							-	-	-	-	-	
„ Boat							-	-	-	-	-	
„ Capstan							-	-	-	-	-	
Single Stationed Acting Leading Men, &c.							-	-	-	-	12	
Total Working Strength							-	-	-	-	289	
Absent, Sick Leave, &c.							-	-	-	-	15	
GRAND TOTAL Estimated for							{ Established		-	-	254	304
							{ Hired		-	-	50	

WOOLWICH YARD.

Number of Slip.	Rate.	Guns.	Tonnage.	H. P.	NAME OF SHIP.	Probable State of Advancement of the Ship on the 31st March 1867.		To be Advanced in 1867-68.		Number of Men to be Employed in 1867-68.	REMARKS.
						In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.	In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.		
BUILDING AND COMPLETING FOR SEA :											
5	Converted Iron-clad Frigate.	12	3,716	800	" Repulse " -	$\frac{3}{8}$	1,393	$\frac{3}{8}$	1,393	166	To launch.
4	Wood Cor- vette.	6	1,459	400	" Thalia " -	$\frac{1}{8}$	182	$\frac{1\frac{1}{2}}{8}$	227	23	
6	Twin screw composite Gun-boat.	2	463	120	" Dwarf " -	$\frac{1}{8}$	58	$\frac{7}{8}$	406	44	
Additional Ships to complete for Sea (after Launching) -					" Plover " (7 men) -	-	-	$\frac{3\frac{3}{4}}{8}$	62	64	To launch and com- plete for sea.
					" Juno " (27 men) -	-	-	$\frac{1\frac{1}{2}}{8}$	274		
					" Philomel " (12 men) -	-	-	$\frac{1\frac{1}{2}}{8}$	124		
					" Thistle " (8 men) -	-	-	$\frac{1\frac{1}{2}}{8}$	87		
					" Boxer " (8 men) -	-	-	$\frac{1\frac{1}{2}}{8}$	87		
					Woolwich Yard Craft, No. 14, } (2 men) -	-	-	$\frac{1}{8}$	20		
					" Water Witch " -	-	-	-	-		
TOTAL						-	-	-	2,680	297	
Repairs, &c. :											
To repair and refit " Rosario," " Rapid," " Royalist," " Speedwell," " Osprey," " Buffalo," " Industry," " Supply," " Dee," all Yachts, Tenders, Yard Craft, and Hulks -						-	-	-	-	250	
Houses, Mast -						-	-	-	-	30	
" Boat -						-	-	-	-	20	
" Capstan -						-	-	-	-	5	
Single Stationed Acting Leading Men, &c. -						-	-	-	-	24	
Total Working Strength -						-	-	-	-	626	
Absent, Sick Leave, &c. -						-	-	-	-	34	
GRAND TOTAL Estimated for						Established	-	-	480	660	
						Hired	-	-	180		

APPENDIX, No. 13.—Programme of Shipbuilding Works, &c., 1867-68—continued.

CHATHAM YARD.

Number of Slip.	Rate.	Guns.	Tonnage.	H. P.	NAME OF SHIP.	Probable State of Advancement of the Ship on the 31st March 1867.		To be Advanced in 1867-68.		Number of Men to be Employed in 1867-68.	REMARKS.	
						In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.	In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.			
BUILDING AND COMPLETING FOR SEA:												
Dock No. 2	Iron-clad Frigate.	12	5,226	1,200	"Hercules" -	$\frac{2\frac{3}{4}}{8}$	1,796	$\frac{3\frac{1}{4}}{8}$	2,123	328	To launch and com- plete for sea.	
Dock No. 3	Iron-clad Turret Ship.	6	5,100	1,000	"Monarch" -	$\frac{1\frac{1}{2}}{8}$	956	$\frac{3\frac{1}{4}}{8}$	2,072	321		
3	Sloop -	4	1,268	350	"Blanche" -	$\frac{4\frac{3}{4}}{8}$	753	$\frac{3\frac{1}{4}}{8}$	515	52		
6	Gun-vessel	4	695	200	"Myrmidon" -	$\frac{6\frac{1}{2}}{8}$	565	$\frac{1\frac{1}{2}}{8}$	130	13		
2	Twin screw Composite Gun-boat.	2	463	120	"Beacon" -	$\frac{1}{8}$	58	$\frac{7}{8}$	406	44		
—	Twin-screw Gun-vessel.	3	663	160	"Woodlark" -	-	Frame to be Converted.				To launch and com- plete for sea.	
Additional Ships to complete for Sea (after Launching) - Nil -												
TOTAL - - -									5,246	758		
Repairs, &c. :												
To repair and refit "Barrosa," Yard Craft, &c. -						-	-	-	-	54		
Houses, Mast -						-	-	-	-	20		
" Boat -						-	-	-	-	30		
" Capstan -						-	-	-	-	3		
Single Stationed Acting Leading Men, &c. -						-	-	-	-	32		
Total Working Strength -						-	-	-	-	897		
Absent, Sick Leave, &c. -						-	-	-	-	48		
GRAND TOTAL Estimated for						{ Established		-	-	545	945	
						{ Hired		-	-	400		

APPENDIX, No 13.—Programme of Shipbuilding Works, &c., 1867-68—continued.

PORTSMOUTH YARD.

Number of Slip.	Rate.	Guns.	Tonnage.	H. P.	NAME OF SHIP.	Probable State of Advancement of the Ship on the 31st March 1867.		To be Advanced in 1867-68.		Number of Men to be Employed in 1867-68.	REMARKS.
						In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.	In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.		
BUILDING AND COMPLETING FOR SEA :											
2	Sloop -	4	1,268	350	"Danæ" -	$\frac{5\frac{1}{2}}{8}$	872	$\frac{2\frac{1}{2}}{8}$	396	40	To launch and com- plete for sea.
1	Ditto -	4	1,268	350	"Sirius" -	-	-	$\frac{6}{8}$	951	96	
2	Ditto -	4	1,268	350	"Dido" -	-	-	$\frac{1\frac{1}{2}}{8}$	237	24	
4	Twin-screw Gun Vessel	3	663	160	"Ringdove" -	$\frac{1\frac{1}{2}}{8}$	124	$\frac{6\frac{1}{2}}{8}$	539	54	To launch and com- plete for sea.
3	Ditto -	3	663	160	"Magpie" -	-	-	$\frac{7}{8}$	581	58	
4	Ditto -	3	663	160	"Swallow" -	-	-	$\frac{6}{8}$	497	50	To launch and com- plete for sea.
3	Twin-screw composite Gun Boat.	2	463	120	"Cracker" -	-	-	$\frac{8}{8}$	463	46	
5	Ditto -	2	463	120	"Avon" -	-	-	$\frac{8}{8}$	463	46	
5	Ditto -	2	463	120	"Elk" -	-	-	$\frac{8}{8}$	463	46	To launch and com- plete for sea.
Haslar	Gun Boat	2	268	60	"Bruiser" -	$\frac{7}{8}$	235	$\frac{1}{8}$	33	4	To launch and com- plete for sea.
Haslar	Ditto -	2	268	60	"Cromer" -	$\frac{3}{8}$	100	$\frac{5}{8}$	168	16	
Additional Ships to complete for } Sea (after Launching) - - - }						"Glasgow" (38 Men) -		-	380	38	
TOTAL - - - -									5,171	518	
Repairs, &c. :											
To repair and refit — "Warrior," "Ariadne," "Resistance," "Wyvern," "Scorpion," "Hector," "Sutlej," "Duncan," "Curaçoa," "Coquette," "Pandora," "Royal Sovereign;" all Yachts, Tenders, Yard Craft, and Hulks; all Gunnery and Training Ships; such Troop Ships as arrive and require repairs, and such portions of the Channel Fleet as may be sent there. Coast Guard Ships ("Frederick William" and "Irresistible"). Maintain all Harbour Ships and Ships in the Reserve - - - - -										456	
Houses, Mast		-	-	-	-	-	-	-	-	65	
" Boat		-	-	-	-	-	-	-	-	65	
" Capstan		-	-	-	-	-	-	-	-	26	
Single Stationed Acting Leading Men, &c.										40	
Total Working Strength - - - - -										1,170	
Absent, Sick Leave, &c. - - - - -										63	
GRAND TOTAL Estimated for										1,233	
{ Established - - - - - 919											
{ Hired - - - - - 314											

APPENDIX, No. 13.—Programme of Shipbuilding Works, &c., 1867-68—*continued.*

DEVONPORT YARD.

Number of Slip.	Rate.	Guns.	Tonnage.	H. P.	NAME OF SHIP.	Probable State of Advancement of the Ship on the 31st March 1867.		To be Advanced in 1867-68.		Number of Men to be Employed in 1867-68.	REMARKS.
						In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.	In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.		
BUILDING AND COMPLETING FOR SEA:											
2	Twin-screw Gun Vessel.	3	663	160	"Lapwing" -	1 8	83	7 8	580	58	To launch, and com- plete for sea.
4	Ditto -	3	663	160	"Seagull" -	-	-	6½ 8	539	54	To launch.
2	Sloop -	4	1,268	350	"Tenedos" -	-	-	1½ 8	237	24	
5	Twin-screw Composite Gun Boat.	2	463	120	"Flirt" -	-	-	8 8	463	46	To launch, and com- plete for sea.
5	Ditto -	2	463	120	"Fly" -	-	-	8 8	463	46	To launch, and com- plete for sea.
1	Tug Steamer.	-	267	144	"Carron" -	3 8	100	5 8	167	17	To launch, and com- plete for sea.
Additional Ships to complete for Sea (after Launching) -						"Daphne" (4 men) -	-	-	646	87	
						"Lord Warden" (13 men)	-	-			
						"Agincourt" (2 men)	-	-			
						"Northumberland" (15 men)	-	-			
						"Penelope" (40 men)	-	-			
						"Newport" (6 men)	-	-			
						"Gnat" (7 men)	-	-			
						TOTAL	-	-	3,095	332	
Repairs, &c.:											
To repair and refit "Rattlesnake," "Sparrow," "Shearwater," "Gibraltar," "Defence," "Royal Oak," "Black Prince," "Prince Albert;" all Yachts, Tenders, Yard Craft and Hulks; all Gunnery and Training Ships; such Troop Ships as arrive and require repairs, and such portions of the Channel Fleet as may be sent there. Coast Guard Ships ("St. George," "Royal George," "Lion" and "Donegal"). Maintain all Harbour Ships and Ships in the Reserve -										300	
Houses, Mast		-	-	-	-	-	-	-	-	60	
" Boat -		-	-	-	-	-	-	-	-	55	
" Capstan		-	-	-	-	-	-	-	-	35	
Single Stationed Acting Leading Men, &c.		-	-	-	-	-	-	-	-	32	
						Total Working Strength -	-	-	-	814	
						Absent, Sick Leave, &c. -	-	-	-	43	
GRAND TOTAL Estimated for						Established -	-	-	817	857	
						Hired -	-	-	40		

APPENDIX, No. 13.—Programme of Shipbuilding Works, &c., 1867-68—continued.

PEMBROKE YARD.

Number of Ship.	Rate.	Guns.	Tonnage.	H. P.	NAME OF SHIP.	Probable State of Advancement of the Ship on the 31st March 1867.		To be Advanced in 1867-68.		Number of Men to be Employed in 1867-68.	REMARKS
						In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.	In Eighths and Fractional Parts of an Eighth.	Equiva- lent Tonnage.		
BUILDING AND COMPLETING FOR SEA:											
2	Iron-clad Frigate.	8	2,947	600	"Penelope" -	$\frac{5\frac{1}{8}}$	1,934	$\frac{2}{8}$	737	114	To launch and send to Devonport to complete for sea.
4	Iron Fri- gate.	16	3,978	1,000	"Inconstant" -	$\frac{1}{8}$	497	$\frac{3\frac{5}{8}}$	1,801	182	
12	Surveying Vessel.	5	425	80	"Newport" -	$\frac{4}{8}$	212	$\frac{3}{8}$	159	15	To launch and send to Devonport to complete for sea.
1	Twin-screw Composite Gun Boat.	2	463	120	"Gnat" -	$\frac{1}{8}$	58	$\frac{6}{8}$	348	37	
7	Twin-screw Gun Vessel.	3	663	160	"Bittern" -	-	-	{Frame to be converted -}		-	To launch and send to Devonport to complete for sea.
Additional Ships to complete for Sea (after Launching) - Nil -						-	-	-	-	-	
TOTAL						-	-	-	3,045	348	
Repairs, &c.:											
To repair and refit "Nankin," Yard Craft, &c. -						-	-	-	-	-	17
Houses, Mast -						-	-	-	-	-	-
" Boat -						-	-	-	-	-	3
" Capstan -						-	-	-	-	-	2
Single Stationed Acting Leading Men, &c. -						-	-	-	-	-	15
Total Working Strength -						-	-	-	-	-	385
Absent, Sick Leave, &c. -						-	-	-	-	-	21
GRAND TOTAL Estimated for						{Established		-	-	406	406
						{Hired		-	-	Nil	

APPENDIX, No. 14.

STATEMENT of the NUMBER and DESCRIPTION of WORKMEN authorised as the ESTABLISHMENTS at the several DOCKYARDS AT HOME.

Description of Workmen, &c.	Deptford.	Woolwich.	Chatham.	Sheerness.	Portsmouth.	Devonport.	Pembroke.	TOTAL
	No.	No.	No.	No.	No.	No.	No.	No.
Shipwrights and Apprentices - - -	259	501	552	504	919	835	406	3,976
Caulkers and Apprentices - - -	14	31	41	40	102	75	29	332
Joiners - - -	29	85	98	79	143	140	54	628
Sawyers - - -	8	17	22	6	63	32	34	182
Smiths and Apprentices	41	116	184	125	187	189	82	924
Workmen at Millwrights Shop and Apprentices	4	1	71	2	-	5	19	102
Workmen at Block, Saw, and Metal Mills -	15	Turner. 18	101	Turners. 11	63	Turners. 29	21	258
Riggers - - -	2	57	58	83	160	141	3	504
Sailmakers and Apprentices - - -	17	14	16	17	30	32	1	127
Spinners and House Boys - -	-	-	77	1	93	120	-	291
Other Trades - -	44	72	134	78	124	128	44	624
Labourers - - -	69	117	116	100	203	192	87	884
Establishment - -	502	1,029	1,470	1,046	2,087	1,918	780	8,832
Hired Labourers, 1st Class, entitled to Pensions - - -	28	74	61	25	88	213	68	557
TOTAL Numbers - -	530	1,103	1,531	1,071	2,175	2,131	848	9,889
Amount of Wages - £.	£. 33,721	£. 70,875	£. 98,699	£. 70,182	£. 139,510	£. 133,476	£. 53,312	£. 599,775

APPENDIX, No. 15.

STATEMENT of the DISTRIBUTION of HIRED ARTIFICERS, LABOURERS, &c., in the several DOCKYARDS AT HOME.

Description of Workmen, &c.	Deptford.	Woolwich.	Chatham.	Sheerness.	Portsmouth.	Devonport.	Pembroke.	Haulbowline.	TOTAL
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Hired Artificers and Labourers, with reference to the Establishment of Shipwrights -	222	421	1,614	133	1,720	220	438	12	4,780
Hired Labourers, 1st Class (not entitled to Pensions) -	89	208	-	84	138	107	61	-	687
Hired Coppersmiths, in Portsmouth Yard, to make Condensers - - -	-	-	-	-	45	-	-	-	45
Hired Spinners, Labourers, and Boys, for getting up Store of Yarn, &c. - -	-	-	121	-	17	104	-	-	242
Colour Women - - -	-	15	5	4	7	12	-	-	43
TOTAL Numbers - - -	311	644	1,740	221	1,927	443	499	12	5,797
Amount of Wages - £.	£. 14,158	£. 33,101	£. 83,301	£. 8,035	£. 93,083	£. 17,874	£. 19,201	£. 515	£. 269,351

APPENDIX, No. 16.

STATEMENT of the NUMBER and DESCRIPTION of WORKMEN estimated for in the STEAM FACTORIES at WOOLWICH, SHEERNESS, PORTSMOUTH, and DEVONPORT.

DESCRIPTION OF WORKMEN, &c.	Woolwich.	Sheerness.	Portsmouth.	Devonport (Keyham).	TOTAL.
	No.	No.	No.	No.	No.
Draughtsmen and Writers - - - -	9	8	10	9	36
Assistant Timekeepers and Recorders of Work	4	4	5	4	17
Leading Men of Stores - - - -	1	1	1	1	4
Store Porters, Messengers, and Boys - -	5	5	5	5	20
Engine-keepers - - - - -	6	8	11	13	38
Pattern-makers, including Leading Men, Assistants, and Boys - - - -	18	17	29	22	86
Fitters and Erectors, Assistants, and Boys -	195	164	317	225	901
Millwrights, &c., including those on the establishment formerly under Master Shipwright	12	18	89	59	178
Boiler-makers, Assistants, and Rivet Boys -	235	175	236	243	889
Engine-smiths and Hammermen - -	45	30	38	45	158
Founders - - - - -	33	23	55	36	147
Coppersmiths - - - - -	22	29	29	19	99
Painters - - - - -	2	1	4	3	10
Labourers - - - - -	146	100	112	194	552
TOTAL Numbers - - -	733	583	941	878	3,135
	£.	£.	£.	£.	£.
Amount of Wages - - - £.	45,030	36,277	62,781	51,414	195,502

APPENDIX, No. 17.

STATEMENT of the NUMBERS and DESCRIPTION of WORKMEN authorised as the ESTABLISHMENTS at the several VICTUALLING YARDS at HOME.

DESCRIPTION OF WORKMEN.	Royal Victoria Yard.	Royal Clarence Yard.	Royal William Yard.	Haulbowline.	TOTAL.
	No.	No.	No.	No.	No.
Coopers and Apprentices - - - -	62	19	19	1	101
Sawyers - - - - -	4	2	1	-	7
Blacksmiths - - - - -	6	5	4	-	15
Millers - - - - -	7	4	3	-	14
Bakers and Bakers' Boys - - - -	21	14	13	-	48
Other Trades - - - - -	47	17	14	3	81
Leading Men of Stores, 1st Class - -	3	3	3	-	9
Ditto - ditto - 2d Class - - -	8	3	3	-	14
Storehousemen, 1st Class - - - -	2	-	-	-	2
Ditto - 2d Class - - - - -	10	6	6	-	22
Leading Men of Labourers - - - -	7	2	2	1	12
Labourers - - - - -	60	17	16	8	101
TOTAL Numbers - - -	237	92	84	13	426
	£.	£.	£.	£.	£.
Amount of Wages - - - £.	22,960	7,003	6,890	1,293	38,146

APPENDIX, No. 18.

DETAILED STATEMENT of the SUMS required for Works under £. 500 each, taken under
Vote No. 11, "NEW WORKS, BUILDINGS, MACHINERY, and REPAIRS."

ESTABLISHMENT.	DESCRIPTION OF WORK.	AMOUNT.	PAGE.
Deptford - -	Renewing Forge Hearths and Chimneys at Smithery - - - - -	£. 250	86
	TOTAL - - - £.	250	
Woolwich - -	Air Furnace for Iron Foundry at Factory -	230	86
	Ventilating Assistant Master Shipwright's Official Residence - - - - -	60	
	TOTAL - - - £.	290	
Chatham - -	Roof over Boiler-makers' Yard - - -	210	87
	Shed for Steam Fire-engine - - -	100	
	Angle Iron Furnace adjoining the present Furnace - - - - -	350	
	TOTAL - - - £.	660	
Sheerness - -	Dredging Mud from Basins and Cambers -	400	87
	Roof over Boiler and forming Store-room at Engineers' Smithery - - - - -	200	
	Pound at Yard Smithery - - - - -	150	
	Fitting up Model-room as a Pattern-room for the Engineers' Department - - -	130	
	TOTAL - - - £.	880	
Portsmouth - -	A working Colour Loft on the upper floor of Sail Loft - - - - -	80	88
	Planking over Railway Jetty - - - - -	170	
	New Muster Station - - - - -	240	
	Laying on Gas at St. Ann's Chapel, and extending Gas Fittings at Millwrights' Shop -	260	
	Roofing Space at North-east angle of Smithery -	340	
	Gas Fittings in Factory Smithery - - -	200	
	TOTAL - - - £.	1,290	
Devonport - -	Eye-bolts to Floor of Dock No. 2 - - -	100	88
	New Brow to South-west corner of Inner Mast Pond - - - - -	160	
	Carriage-road in front of Officers' Houses -	200	
	Paving Fore-street - - - - -	250	
	Office for Timber Convertors - - - - -	300	
	Drainage around Docks - - - - -	300	
	Renewing a portion of the Altars and Floor of Dock No. 4 - - - - -	400	
	TOTAL - - - £.	1,710	
Keyham - -	Urinal for 20 Persons, East-end of Factory -	130	89
	Four additional Water-closets, Moon Cove Wall - - - - -	140	
	Interest on Outlay for Branch Line of Railway into the Yard from the Cornwall Railway -	350	
	TOTAL - - - £.	620	

Appendix, No. 18.—DETAILED STATEMENT of the Sums required for Works, &c.—*continued.*

ESTABLISHMENT.	DESCRIPTION OF WORK.	AMOUNT.	PAGE.
		£.	
Pembroke - -	Coal Store at head of Slip No. 1 - - -	300	
	Extension of Railways - - -	250	
	Improving Drainage of Admiralty Property outside the Yard - - -	100	
	TOTAL - - - £.	650	89
Royal Victoria Yard at Deptford.	Gas Stoves to Transport Clothing Stores -	140	
	TOTAL - - - £.	140	90
Royal Clarence Yard at Gosport.	Clock for the Yard - - -	200	
	Bath-room at Bakery - - -	90	
	TOTAL - - - £.	290	90
Haslar Hospital -	Enclosing Airing Ground - - -	200	
	TOTAL - - - £.	200	91
Plymouth Hospital	Iron Railing in lieu of Wall in front of Hos- pital - - -	150	
	TOTAL - - - £.	150	91
Yarmouth Hospital	Water-closets to B. and C. Houses - -	330	
	Converting Dead-house into Bath-room -	490	
	Reading-room, Billiard-room, and Dispensary	90	
	Sleeping Cabins for Attendants in Dormitories	70	
	Lining Walls in Hall and Day-room - -	210	
	Additional Ventilation in Dormitories -	80	
	Greenhouse - - -	150	
	TOTAL - - - £.	1,420	91
Woolwich Barracks	Skittle and Bowling Alleys for Non-Commis- sioned Officers and Men - - -	420	
	Substituting Wood for Asphalte Floor in Men's Kitchens - - -	400	
	Converting old Armourers' Shop into Quarters for Staff Serjeants - - -	210	
	Covering at Butcher's Shop - - -	40	
	Additional Tanks for Men's Baths - -	30	
	Fittings to Sheds at Plumstead Marsh - -	100	
	TOTAL - - - £.	1,200	92
Chatham Barracks -	Quarters for Married Serjeants - - -	470	
	Stable for Colonel Commandant - - -	350	
	Latrine for Divisional Garden - - -	350	
	Cupboards for Brooms and Enclosures for Tubs - - -	250	
	TOTAL - - - £.	1,420	92

Appendix, No. 18.—DETAILED STATEMENT of the Sums required for Works, &c.—*continued.*

ESTABLISHMENT.	DESCRIPTION OF WORK.	AMOUNT.	PAGE.
		£.	
Forton Barracks -	Commissariat Store and Issuing room - - -	420	
	Quarters for Serjeant Majors - - -	360	
	TOTAL - - - £.	780	92
Deal Depôt - -	Additions to Officers' Mess - - - -	350	
	TOTAL - - - £.	350	93
Gibraltar Naval Yard.	Gas Fittings - - - - -	150	
	TOTAL - - - £.	150	93
Malta Naval Yard -	Gas Fittings - - - - -	50	
	TOTAL - - - £.	50	94
Bermuda Naval Yard.	Quarters for Artificers in Spar-yard - -	220	
	Re-covering part of Roof of Yard Smithery -	450	
	TOTAL - - - £.	670	94
Halifax Naval Yard	Steam Kiln - - - - -	130	
	TOTAL - - - £.	130	95
Jamaica Naval Yard	Shed for Condemned Stores - - - -	250	
	Shed at Sail-loft and Rigging-house - -	280	
	TOTAL - - - £.	530	95
Vancouver's Island	Timber Shed - - - - -	100	
	Fittings in present Storehouses - - -	100	
	TOTAL - - - £.	200	96
Cape of Good Hope	Renewing Roofs of Official Residences - -	480	
	Recreation-room - - - - -	150	
	TOTAL - - - £.	630	96
Hong Kong and Kowloon.	Shed for fitting Rigging - - - - -	330	
	Guard-house - - - - -	350	
	TOTAL - - - £.	680	96
Malta Hospital -	Gas Fittings - - - - -	220	
	TOTAL - - - £.	220	97

APPENDIX, No. 19.

DETAILED STATEMENT of the SUMS required for REPAIRS and MAINTENANCE of BUILDINGS, taken under Vote No. 11—New Works, Buildings, Machinery, and Repairs.

	Class 1.	Class 2.	Class 3.		Class 4.	Class 5.	Class 6.	Class 7.	Class 8.	Class 9.	Class 10.		Page of Estimate.
	Dwellings.	Offices.	Workshops.		Storehouses.	Docks.	Slips.	Wharf Walls, Boundary Walls, &c.	Paving, Drains, &c.	Miscellaneous.	Gas Fittings.	TOTAL.	
			Buildings.	Furnaces, &c.									
H O M E.													
Naval Yards :	£.	£.	£.	£.	£.	£.	£.	£.	£.	£.	£.	£.	
Deptford - - -	225	100	405	200	180	75	140	135	150	70	160	1,840	86
Woolwich - - -	480	380	750	400	270	305	885	40	195	55	90	3,850	86
Chatham - - -	570	160	1,445	800	435	135	445	155	400	105	130	4,780	87
Sheerness - - -	220	105	410	200	495	120	90	115	280	50	215	2,300	87
Portsmouth, &c. - -	860	295	575	600	1,665	370	310	805	560	585	275	6,900	88
Devonport - - -	275	150	1,095	500	900	110	20	75	490	145	60	3,820	88
Keyham - - -	30	235	785	600	295	350	-	95	185	155	60	2,790	89
Pembroke - - -	400	205	530	500	680	80	1,000	185	760	90	150	4,580	89
Outposts :													
Haulbowline - - -	185	285	10	-	165	-	-	120	60	75	-	900	90
Hobbs Point - - -	10	-	-	-	10	-	-	10	10	10	-	50	90
Lewes Naval Prison - -	25	125	10	-	-	-	-	10	20	10	-	200	90
Victualling Yards :													
Royal Victoria - - -	260	65	300	105	250	-	-	70	50	50	50	1,200	90
Royal Clarence - - -	275	15	50	50	40	-	-	20	30	150	10	640	90
Royal William - - -	50	10	170	80	260	-	-	-	50	100	10	730	91
Medical Establishments :													
Woolwich - - -	-	810	-	-	-	-	-	60	35	80	15	1,000	91
Chatham - - -	380	410	130	-	5	-	-	30	15	10	20	1,000	91
Haslar - - -	290	765	65	-	100	-	-	460	200	40	20	1,940	91
Plymouth - - -	625	590	-	-	10	-	-	90	40	110	35	1,500	91
Yarmouth - - -	160	190	-	-	80	-	-	50	50	75	25	570	91
Marine Divisions :													
Deptford - - -	60	40	-	-	-	-	-	-	30	10	10	150	92
Woolwich - - -	430	150	-	-	15	-	-	10	30	50	15	700	92
Chatham - - -	775	55	35	-	15	-	-	10	80	15	15	1,000	92
Forton - - -	1,355	50	20	-	145	-	-	70	70	90	20	1,820	92
Eastney - - -	240	120	55	-	45	-	-	20	50	145	45	720	92
Plymouth - - -	500	225	10	-	60	-	-	-	20	165	20	1,000	92
Mill Bay - - -	115	-	-	-	-	-	-	-	-	35	-	150	92
Deal Depôt - - -	200	60	25	-	20	-	-	10	15	70	-	400	93
Coast Guard - - -	10,230	-	-	-	-	-	-	-	-	-	-	10,230	93
Plymouth Breakwater -	-	-	-	-	-	-	-	5,170	-	-	-	5,170	89
Admiralty Offices - - -	800	4,000	-	-	-	-	-	-	-	-	70	4,870	93
FOREIGN.													
Naval Yards :													
Gibraltar - - -	235	25	5	-	25	-	-	-	-	10	-	300	93
Malta - - -	350	50	100	60	150	30	-	140	70	110	-	1,060	94
Bermuda Naval and Victualling - - -	915	15	30	25	15	-	-	60	85	65	-	1,210	94
Halifax - - -	175	10	220	85	20	-	-	315	115	-	-	940	95
Jamaica - - -	90	25	85	20	80	-	-	100	45	115	-	560	95
Antigua - - -	95	10	5	-	15	-	-	625	10	-	-	760	95
Nassau - - -	120	60	-	-	300	-	-	20	-	-	-	500	95
Barbadoes - - -	-	-	-	-	100	-	-	-	-	-	-	100	95
Vancouver's Island -	85	20	75	-	95	-	-	325	-	-	-	600	96
Cape of Good Hope -	100	30	35	-	120	-	-	90	45	30	-	450	96
Trincomalee - - -	70	15	55	-	140	-	-	20	25	25	-	350	96
Hong Kong and Kowloon	20	10	100	-	60	-	-	40	20	20	-	270	96
Victualling Yards :													
Gibraltar - - -	50	-	-	-	100	-	-	-	-	-	-	150	96
Malta - - -	45	40	40	50	60	-	-	30	35	70	-	370	96
Halifax - - -	90	5	-	-	5	-	-	40	10	-	-	150	96
Cape of Good Hope -	25	-	10	-	55	-	-	-	-	10	-	100	96
Medical Establishments :													
Lisbon - - -	40	80	-	-	10	-	-	10	-	10	-	150	97
Malta - - -	175	140	-	-	60	-	-	100	30	85	-	590	97
Bermuda - - -	345	35	-	-	-	-	-	15	35	40	-	470	97
Jamaica - - -	115	70	-	-	5	-	-	30	15	35	-	270	97
Cape of Good Hope -	25	45	-	-	-	-	-	25	-	5	-	100	97
TOTAL - - - £.	23,130	10,280	7,635	4,275	7,555	1,575	2,890	9,800	4,415	3,175	1,520	76,250	

APPENDIX, No. 20.

STATEMENT of PAY of Superintending Engineers, Clerks of Works, Draughtsmen, Clerks, Foremen, Office Keepers, &c., temporarily employed on Engineering and Architectural Works and Repairs, provided for under Vote No. 11, and formerly charged direct to the Works on which they were engaged.

Superintending and Assistant Civil Engineers.	Clerks of Works.	Draughtsmen and Clerks.	Foremen.	Office Keepers.	Establishments.	Required for the Year 1867-8.	Authorized, 1866-7.
						£.	£.
—	—	—	1	—	London - -	130	130
—	—	1	—	—	Deptford - -	156	156
—	—	1	—	1	Woolwich - -	146	146
2	1	6	11	2	Chatham - -	3,438	3,438
—	—	1	—	1	Sheerness - -	195	195
1	—	7	4	3	Portsmouth -	1,791	1,791
—	1	—	—	—	Eastney - -	275	275
—	—	1	1	—	Gosport - -	289	289
—	—	3	—	1	Devonport - -	504	555
—	—	2	1	1	Keyham - -	478	478
—	—	—	—	1	Plymouth - -	23	23
—	—	1	1	1	Pembroke - -	415	415
—	—	1	2	—	Haulbowline -	322	306
—	1	—	—	—	Yarmouth - -	52	52
—	—	4	5	—	Coast Guard -	1,270	1,270
—	—	2	1	—	Gibraltar - -	305	330
1	—	4	—	—	Malta - -	1,072	1,072
—	—	—	4	1	Bermuda - -	603	603
—	—	1	1	—	Halifax - -	211	258
—	—	—	1	—	Jamaica - -	300	300
—	—	—	1	—	Hong Kong -	125	125
4	3*	35	34	12	TOTAL - £.	12,100	12,207

No.	
4	Superintending and Assistant Civil Engineers, Salaries varying from 350 <i>l.</i> to 700 <i>l.</i> p' ann.
2*	Clerks of Works - - - - - ditto 200 <i>l.</i> to 275 <i>l.</i> p' ann.
35	Draughtsmen and Clerks - - - - - ditto 40 <i>l.</i> to 250 <i>l.</i> p' ann.
34	Foremen - - - - - ditto 4 <i>s.</i> 6 <i>d.</i> per day to 300 <i>l.</i> p' ann.
12	Office Keepers - - - - - ditto 1 <i>s.</i> 6 <i>d.</i> per day to 4 <i>s.</i> per day.
1*	Clerk of Works under War Department allowed an addition to his pay of 1 <i>l.</i> per week.
88	- - TOTAL.

Note.--The foregoing appointments are temporary, and liable to change, in proportion to the character and extent of the works authorised, for which this extra superintendence is required.

APPENDIX, No. 21.

A RETURN, giving an Analysis of the EXPENDITURE in the Year 1865-66, (the last Financial Year closed,) for CONTINGENCIES.

	£.	s.	d.
Allowance to the Rev. J. K. Goldney, R.N., Chaplain of Greenwich Hospital, for superintending the issue of Religious Books to the Fleet - - -	150	-	-
Proctor's Expenses in procuring condemnation of Piratical Junks captured by Her Majesty's ships - - - - -	95	8	10
Payments to Professional Persons and others, for Special Services, &c., and Wages, &c. of Interpreters - - - - -	751	16	7
Subsistence, Travelling Expenses, &c., of Naval Officers on Special Services, and of Officers and Crews of Her Majesty's Ships detained on shore by Stress of Weather - - - - -	354	6	5
Wages of Petty Officers and Seamen employed as Signal Men between St. Ann's Head and Pembroke Dockyard - - - - -	164	6	6
Presentation Watches, Epergnes, &c., for Officers of the French and Italian Navy in recognition of services rendered on the occasion of the destruction of Her Majesty's ship "Bombay" by fire - - - - -	276	18	6
Expenses incurred on account of the Establishments of Her Majesty and the Royal Family - - - - -	2,426	-	2
Postages by Captains, Paymasters, and Consuls; conveyance of Despatches; Quarantine Expenses; and Per-centage on Payments by Commission Agents, &c. - - - - -	409	3	8
Freight of Specie for the use of Her Majesty's Ships - - - - -	267	1	10
Conveyance and Stowage of Guns, Powder, Shot, and Shell - - - - -	572	12	3
Rents of Drill Ground and Rifle Range at Devonport; of Pier at Cowes for use of Her Majesty's Ships; and of other Premises, &c., for the Naval Service - - - - -	212	8	8
Expenses of Landing, &c., at Shanghai a Monumental Cross to be erected at Pekin; printing Examination Papers, and Prizes, for Cadets of Her Majesty's Training Ship "Britannia"; Gun Shot Rewards; clearing Ships, Vessels, &c., in harbour of Ashes, Dirt, &c.; repairing and making Furniture for the Naval Barracks at Sheerness; and other Contingent Expenses - - -	851	3	10
TOTAL EXPENDITURE for "CONTINGENCIES" in the Year 1865-66 - - £.	6,531	7	3

AN ACCOUNT of the NAVAL OLD STORE MONEYS and EXTRA RECEIPTS brought to Account between the 1st April 1865 and the 31st March 1866, and paid over Quarterly to the Exchequer, instead of being appropriated in aid of the Naval Grants on the Estimates, pursuant to directions contained in the Treasury Minutes of 2nd May 1848 and 12th December 1863.

HEADS OF OLD STORE MONEYS AND EXTRA RECEIPTS.	Amount of Old Store Moneys.	Amount of Extra Receipts.	TOTAL.	VOTE of the Navy Estimates under which formerly the Credits in Aid were appropriated.
	£. s. d.	£. s. d.	£. s. d.	
Discharges of Seamen and Marines - - - - -	- - -	5,611 1 6	} 5,697 19 2	No. 1.
Barrack Schools (Contributions towards Education) - - -	- - -	86 17 8		
Old Stores, Victualling (Sales) - - - - -	11,527 2 3	- - -	} 18,324 5 2	No. 2.
Old Seamen's Clothing, Marine Stores, &c. (Sales) - - -	6,797 2 11	- - -		
Sale of Charts - - - - -	- - -	5,099 10 9	} 5,114 10 9	No. 5.
Instruction of Marine Cadets - - - - -	- - -	15 - -		
Barrack Rents (Rents of Canteens and Shops) - - - - -	- - -	110 5 11	110 5 11	No. 6.
Old Stores, Naval (Sales) - - - - -	42,101 1 4	- - -	} 77,480 2 8	No. 10.
Proceeds of the Sale of Old Ships - - - - -	13,524 2 8	- - -		
Per Centage on Cabin and Superintendent's Furniture, for its use - - -	- - -	1,776 1 8		
Repayments, Naval (Supplies of Stores) - - - - -	- - -	20,086 17 -		
		21,862 18 8		
Less:—Sale of Ships: Debit Balance arising from a Payment made at Hong Kong for Advertising the Sale of Her Majesty's Ship "Naiad" - - -	- - -	8 - -	} 55,625 4 -	
Old Stores, Medical (Sales) - - - - -	273 10 1	- - -	} 432 5 7	No. 12.
Repayments, Medical (Supplies of Stores) - - - - -	- - -	158 15 6		
Penalties, Fines, &c. - - - - -	- - -	3,361 11 4	} 26,169 11 8	No. 13.
Sale of Naval Property - - - - -	- - -	14,977 10 6		
Rents of Naval Premises - - - - -	- - -	7,288 12 8		
Per Centage on Port Admirals' Furniture, for its use - - -	- - -	187 18 1		
Miscellaneous Receipts - - - - -	- - -	353 19 1		
Contributions from Naval Prize Fund - - - - -	- - -	4,000 - -	4,000 - -	No. 15.
Old Stores, Army Service (Sales of Transport Stores) - - -	706 7 11	- - -	706 7 11	No. 17.
Old Store Moneys - - - - -	£. 74,929 7 2	} - £.	138,035 8 10	
Extra Receipts - - - - -	63,106 1 8			

Admiralty,
15 February 1867. }

J. Beeby,
Accountant General of the Navy.

NAVY ESTIMATES,

FOR

THE YEAR

1867-68,

WITH APPENDIX.

[ACCOUNT OF NAVAL OLD STORE MONEYS and
EXTRA RECEIPTS in 1865-66.]

(Presented to Parliament by Command of Her Majesty.)

*Ordered, by The House of Commons, to be Printed,
18 February 1867.*

[*Price 2s. 2d.*]

57.

Under 20 oz.

N A V Y.

N A V Y E S T I M A T E S

FOR THE YEAR

1867-68.

REVISED ESTIMATE for VOTE No. 10, NAVAL STORES for the BUILD-
ING, REPAIR, and OUTFIT, of the FLEET and COAST GUARD, STEAM
MACHINERY, and SHIPS Built by CONTRACT.

SECTION II.—CONTROLLER OF THE NAVY.

(PRESENTED TO PARLIAMENT BY HER MAJESTY'S COMMAND.)

Ordered, by The House of Commons, to be Printed,
13 May 1867.

VOTE No. 10.

NAVAL STORES FOR THE BUILDING, REPAIR AND OUTFIT OF THE FLEET AND
COAST GUARD, STEAM MACHINERY, AND SHIPS BUILT BY CONTRACT.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
SECTION II.—CONTROLLER OF THE NAVY.		
For the Purchase of Steam Machinery for Her Majesty's Ships and Vessels, and for Payments to be made for Ships and Vessels building or to be built by Contract, viz.:	£. s. d.	£. s. d.
STEAM MACHINERY FOR HER MAJESTY'S SHIPS AND VESSELS:		
For Engines already ordered - - - - -	170,247 - -	142,000 - -
For Engines to be ordered - - - - - £. 472,820		
Deduct: Amount to be voted in future years to complete } contracts - - - - - }	288,288	
	184,532 - -	59,000 - -
TOTAL for Steam Engines - - - £.	354,779 - -	201,000 - -
SHIPS BUILDING BY CONTRACT, &c.:		
For Iron Armour-plated Ship "Northumberland" - - - - -	- - -	{ 60,000 - - 10,000 - - Supplementary Esti- mate.
For a Ship to be built on the design of Captain Coles:		
Contract Price - - - - - £. 275,000		
Deduct:—Amount to be voted in future Years - - - 191,650	83,350 - -	{ 10,000 - - Supplementary Esti- mate.
For Armour-plated Ships, Iron Ships, and Gun boats:		
Estimated Cost - - - - - £. 851,300		
Deduct:—Amount to be voted in future Years - - 499,470	351,830 - -	-
For Gun Boats and other Vessels building by Contract - - -	- - -	7,000 - -
For Experimental Purposes - - - - -	10,000 - -	10,000 - -
For the Purchase of Dockyard Tugs - - - - -	26,600 - -	6,000 - -
For Building and Repairing Coast Guard Tenders - - - - -	12,000 - -	12,000 - -
For the Repairs of Ships at other than Her Majesty's Dockyards - - -	20,000 - -	20,000 - -
For Subsistence and Travelling Expenses of Dockyard Officers and others superintending Ships building by Contract - - - - -	2,000 - -	2,000 - -
TOTAL - - - £.	860,559 - -	{ 318,000 - - 20,000 - - Supplementary Esti- mates.

This REVISED ESTIMATE causes no alteration in the Aggregate Amount, £.860,559, required under VOTE No. 10 (Section II.), the Vote having been revised in detail only on the two following Items, viz.:

ITEM OF VOTE.	ORIGINAL ESTIMATE.		REVISED ESTIMATE.		REVISED ESTIMATE.	
					More.	Less.
	£.	£.	£.	£.	£.	£.
STEAM MACHINERY FOR HER MAJESTY'S SHIPS AND VESSELS.						
For Engines to be ordered - - - -	464,700	- -	472,820	- -	8,120	
Deduct,—Amount to be voted in future } Years, to complete Contracts - - }	272,688	- -	288,288	- -	15,600	
		192,012		184,532	- -	7,480
SHIPS BUILDING BY CONTRACT, &c.						
For Armour-plated Ships, Iron Ships, and Gun Boats:						
Estimated Cost - - - -	745,000	- -	851,300	- -	106,300	
Deduct,—Amount to be voted in future } Years - - - - }	400,650	- -	499,470	- -	98,820	
		344,350		351,830	7,480	

Admiralty Office, }
7 May 1867. }

H. CORRY.

C. DU CANE.

N A V Y.

N A V Y E S T I M A T E S

For the Year 1867-68.

REVISED ESTIMATE for VOTE No. 10,
NAVAL STORES for the BUILDING, REPAIR,
and OUTFIT, of the Fleet and Coast Guard,
STEAM MACHINERY, and Ships Built by
CONTRACT.

SECTION II.—CONTROLLER OF THE
NAVY.

(Presented to Parliament by Her Majesty's Command.)

Printed by W. G. & J. S. Smith, Stationers, 10, Abchurch Lane, London, E.C. 4.

Ordered, by the House of Commons, to be Printed,
13 May 1867.

N A V Y.

S U P P L E M E N T A R Y E S T I M A T E

O F

H E R M A J E S T Y ' S N A V Y ,

F O R T H E Y E A R 1 8 6 7 - 6 8 .

AN ESTIMATE of the SUM required to Defray the Charges which shall come in course of Payment in the Year ending the 31st March 1868, on account of the INCREASED PAY to be given to the NON-COMMISSIONED OFFICERS and PRIVATES of the ROYAL MARINE CORPS, under the following Head of the Navy Estimates :—

V O T E N o . 1 . — W A G E S T O S E A M E N A N D M A R I N E S .

Nos.		£.
7,736	For Increased Pay to Non-Commissioned Officers and Privates of Royal Marines serving Afloat -	24,400
8,124	For - ditto - - - serving on Shore - -	25,600
15,860		£. 50,000

The whole charge amounts to the sum of Fifty Thousand Pounds.

H. C O R R Y .

C. D U C A N E .

Admiralty,
22 July 1867.

N A V Y.

SUPPLEMENTARY ESTIMATE

OF

HER MAJESTY'S NAVY,

For the Year 1867-68.

AN ESTIMATE of the Sum required to defray the Charges which shall come in course of Payment in the Year ending 31 March 1868, on account of the INCREASED PAY to be given to the NON-COMMISSIONED OFFICERS and PRIVATES of the ROYAL MARINE CORPS, under the following Head of the Navy Estimates.

VOTE No. 1.

WAGES TO SEAMEN AND MARINES.

(Presented to Parliament by Her Majesty's Command.)

*Ordered, by The House of Commons, to be Printed,
22 July 1867.*

177
GREENWICH HOSPITAL AND SCHOOL.

E S T I M A T E

FOR

GREENWICH HOSPITAL AND SCHOOL,

FOR THE YEAR 1867-68.

(The Expenditure to be repaid from Greenwich Hospital Funds, per Act 28 & 29 Vict. c. 89.)

[Separated from the Navy Estimates, but prepared by the Naval Department.]

*Ordered, by The House of Commons, to be Printed,
18 February 1867.*

ESTIMATE FOR GREENWICH HOSPITAL AND SCHOOL, FOR THE YEAR 1867-68.

(The Expenditure to be repaid from Greenwich Hospital Funds to Her Majesty's Exchequer, and form part of the Consolidated Fund, per Act 28 & 29 Vict. c. 89, s. 51.)

GREENWICH HOSPITAL.			REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
SALARIED ESTABLISHMENT (ADMIRALTY):				
	£.	s. d.	£.	s. d.
Clerks lent from Green- wich Hospital -	1 from 315 l. to 500 l. per annum -	420 - -	787 - -	571 - -
	2 from 90 l. to 300 l. per annum -	367 - -	173 - -	283 - -
Allowance to two of the above while employed at the Admiralty			274 - -	274 - -
Three Writers, at 5 s. a day each			31 - -	31 - -
Boy Messenger, at 12 s. a week			2 - -	- -
Additional day's pay for leap year			1,267 - -	1,159 - -
	£.			
OFFICE OF COMPTROLLER OF GREENWICH HOSPITAL ESTATES, &c.				
Comptroller of the Greenwich Hospital Estates and Solicitor to Greenwich Hospital, viz.:	£.	s. d.		
As Comptroller -		500 - -	1,000 - -	1,000 - -
„ Solicitor -		500 - -	358 - -	343 - -
One Senior Clerk to Comptroller, from 315 l. to 450 l.			100 - -	100 - -
Allowance to the Comptroller for the services of a subordinate Clerk			1,458 - -	1,443 - -
	£.			
HOUSEHOLD AND INFIRMARY. SALARIED ESTABLISHMENT:				
Captain Superintendent -			800 - -	800 - -
Two Lieutenants, at 230 l. each*			460 - -	460 - -
Inspector General of Hospitals			821 - -	- -
Deputy Inspector General of Hospitals			584 - -	511 - -
Assisting Surgeon, acting as Surgeon and Medical Store- keeper			530 - -	456 5 -
Four Assistant Surgeons			912 - -	902 12 6
Allowances to Medical Officers for Servants, Fuel, and Lights			361 - -	- -
	£.	s. d.		
Steward* -		500 - -	600 - -	600 - -
Allowance to ditto for doing duties as Agent		100 - -	500 - -	500 - -
Chaplain* -				
Clerks:				
Three Senior, from 315 l. to 450 l. per annum			1,089 - -	1,035 - -
Four, from 90 l. to 300 l. per annum			912 - -	861 7 6
	£.	s. d.		
Master Brewer -		250 - -		
Allowances to ditto, not to be continued to successor -		24 15 -		274 15 -
First Mate of the Victualling		120 - -		
Allowance to ditto, not to be continued to successor		40 - -	160 - -	160 - -
Second Mate of the Victualling		100 - -		
Allowance to ditto, not to be continued to successor		30 - -	130 - -	130 - -
Matron -			70 - -	70 - -
Organist -			60 - -	60 - -
Clerk and Steward of Infirmary			100 - -	100 - -
Additional day's pay to Medical Officers for leap year			8 - -	- -
Rates and Taxes			260 - -	900 - -
Lighting the Hospital with Gas			880 - -	850 - -
Carried forward	£.		9,237 - -	8,671 - -

* In addition to Half-pay.

GREENWICH HOSPITAL—continued.		REQUIRED for the Service of the Year 1867-68.	LAST VOTE for the Financial Year 1866-67.
HOUSEHOLD AND INFIRMARY—continued.			
Salaried Establishment—continued.		£. s. d.	£. s. d.
Brought forward - - -		9,237 - -	8,671 - -
Washing - - - - -		1,500 - -	2,000 - -
Funerals - - - - -		100 - -	150 - -
Scripture Reader - - - - -		60 - -	60 - -
Allowance to Roman Catholic Priest - - - - -		25 - -	25 - -
Library - - - - -		35 - -	35 - -
Printed Forms, &c. - - - - -		25 - -	25 - -
Allowances in lieu of Stationery - - - - -		44 - -	44 - -
Carting Coals, Rubbish, &c. - - - - -		40 - -	40 - -
Postage, Travelling Expenses, Advertisements, conducting Lunatics, Chapel Allowances, and other Miscellaneous Expenses - - - - -		250 - -	181 - -
TOTAL Salaried Establishment	Salaries - - £.8,097 Rates, Taxes, &c. - 1,140 Contingencies - 2,079 } £.	11,316 - -	11,231 - -
WAGES :			
For the Wages of Dispensary Assistants, Ward Matron, Ward Master, Nurses, Porters, Barbers, Cooks, Bakers, Labourers, &c., and for Clothing for Nurses - - - - -		7,897 - -	8,356 - -
For the Wages, Clothing, &c. of the Metropolitan Police Force employed at the Hospital and Schools; viz.—			
1 Inspector - - - - -	£.118 - -		
3 Serjeants - - - - -	207 - -		
14 Constables - - - - -	780 - -		
18			
Clothing - - - - -	80 - -		
Allowances in lieu of Fuel - - - - -	18 - -		
Washing Police Bedding, Apprehension of Offenders, and other Contingencies - - - - -	31 - -		
		1,234 - -	1,280 - -
	£.	9,131 - -	9,636 - -
REPAIRS AND MAINTENANCE OF BUILDINGS :			
For Repairs and Maintenance of Buildings - - - - -		5,530 - -	4,657 - -
For Wages of the Temporary Establishment employed under the Director of Works to the Admiralty - - - - -		510 - -	
	£.	6,040 - -	4,657 - -
For Provisions, Clothing, Bedding, and Stores of all kinds, £.		12,100 - -	12,100 - -
For Medicines and Surgical Instruments - - - - -	£.	900 - -	900 - -
For Money Allowances to In Pensioners, including Additional Allowances to Married Men - - - - -	£.	3,000 - -	3,000 - -
For Superannuation Allowances to Nurses and Servants, £.		1,631 - -	1,620 - -
Number and Description of Pensioners paid out of the above Sum :			
88 Nurses.			
1 Foreman of Bakers.			
2 Cooks.			
1 Sculleryman.			
1 Warehouseman.			
93			
TOTAL GREENWICH HOSPITAL - £.		46,843 - -	45,746 - -

GREENWICH HOSPITAL— <i>continued</i> .	REQUIRED for the Service of the Year 1867/68.			LAST VOTE for the Financial Year 1866/67.		
	£.	s.	d.	£.	s.	d.
PENSIONS:						
Greenwich Hospital Pensions to 10 Flag Officers, at 150 <i>l.</i> each - - - - -	1,500	-	-	1,500	-	-
Ditto - - - to other Officers, at various rates -	3,985	-	-	3,990	-	-
£.	5,485	-	-	5,490	-	-
398 Greenwich Hospital (Life) Pensions, at 13 <i>l.</i> 12 <i>s.</i> per annum, granted to Men of 70 years of age and upwards, who having been Pensioners for a period of not less than 10 years, elected to leave the Hospital on 1st October 1865 - - - - -	5,412	-	-	5,780	-	-
344 Greenwich Hospital (Life) Pensions, at 7 <i>l.</i> 12 <i>s.</i> per annum, granted to Men of 55 years of age and under 70, who having been Pensioners for upwards of five years, elected to leave the Hospital on the 1st October 1865 - - - - -	2,614	-	-	2,941	-	-
Money Allowances to the above Men, and also to 163 others, who, being In-pensioners of the Hospital, did not come within the regulations for an award of Greenwich Hospital Pensions, but, notwithstanding which, elected to leave it and revert to the Naval Pensions they had given up on admission - - - - -	10,659	-	-	11,537	-	-
1,088 Greenwich Hospital (Life) Pensions of 13 <i>l.</i> 12 <i>s.</i> per annum to Naval Pensioners of 70 years of age and upwards, resident in the United Kingdom, who have been Naval Pensioners for a period of not less than 10 years - - - - -	14,796	-	-	16,361	-	-
2,170 Greenwich Hospital (Life) Pensions of 7 <i>l.</i> 12 <i>s.</i> per annum to Naval Pensioners of 55 years of age and under 70, resident in the United Kingdom, who have been Naval Pensioners for a period of not less than five years - - - - -	16,491	-	-	11,293	-	-
4,000 £.	49,972	-	-	47,912	-	-
GRATUITIES:						
Gratuities to Widows of Seamen and Marines - - -	1,000	-	-	1,500	-	-
TOTAL PENSIONS - - - £.	56,457	-	-	54,902	-	-

GREENWICH SCHOOL.

SALARIED ESTABLISHMENT:

	REQUIRED for the Service of the Year 1867-68.	LAST VOTE for the Financial Year 1866-67.
	£. s. d.	£. s. d.
Principal and Chaplain - - - - -	500 - -	500 - -
Head Master, Nautical Division, 300 <i>l.</i> to 400 <i>l.</i> * - -	342 - -	332 - -
Three Head Masters - {1 at - - - - - 350 <i>l.</i> 2 from 250 <i>l.</i> to 300 <i>l.</i> each, 600 <i>l.</i> }	950 - -	950 - -
Allowances to one of the above, not to be continued to Successor - - - - -	54 - -	54 - -
Second Master, Nautical Division, 120 <i>l.</i> to 220 <i>l.</i> - -	160 - -	220 - -
Three Second Masters, from 120 <i>l.</i> to 180 <i>l.</i> - - -	481 - -	488 15 -
Three Third Masters, from 105 <i>l.</i> to 150 <i>l.</i> - - -	373 - -	385 19 -
Three Fourth Masters, from 80 <i>l.</i> to 120 <i>l.</i> - - -	260 - -	260 6 -
French Master - - - - -	250 - -	250 - -
Allowances to the above:		
To a Master, for acting as Organist - - - - -	20 - -	20 - -
To three Head Masters, for additional Instruction to Pupil Teachers - - - - -	100 - -	100 - -
To three Masters for extra Teaching, and for performing the duties of Librarians - - - - -	30 - -	30 - -
For delivering Lectures, and giving instruction to Boys in Marine Surveying - - - - -	110 - -	90 - -
Lodging-money to Masters not provided with Apartments -	394 - -	395 - -
Rates and Taxes - - - - -	10 - -	84 - -
Lighting the School with Gas - - - - -	250 - -	250 - -
Lessons in Drawing - - - - -	45 - -	45 - -
Monitorial Allowances to Pupil Teachers, and for Instruction of the Boys in French - - - - -	63 - -	63 - -
Books and Stationery - - - - -	800 - -	1,060 - -
Library - - - - -	60 - -	60 - -
Musical Instruments - - - - -	60 - -	60 - -
Washing - - - - -	900 - -	1,000 - -
Funerals - - - - -	25 - -	25 - -
Postage, Advertisements, Expense of sending Boys to their Homes and to H.M. Ships, and other Miscellaneous Expenses - - - - -	133 - -	133 - -
TOTAL Salaried Establishment {Salaries - - - - £.3,520 Rates, Taxes, &c. - - 654 Contingencies - - 2,196} £.	6,370 - -	6,856 - -
WAGES:		
For the wages of Drill-masters, Band-master, Tailors, Cooks, Engineers and Stokers for Lavatories and Kitchen, Nurses, Laundresses, Seamstresses, Labourers and others - £.	3,519 - -	3,393 - -
Repairs and Maintenance of Buildings - - - - £.	2,200 - -	1,500 - -
Provisions, Clothing, Bedding and Stores of all kinds - £.	12,811 - -	12,650 - -
Medicines and Surgical Instruments - - - - £.	100 - -	100 - -
Superannuation Allowances to Masters, Nurses and others - £.	335 - -	220 - -
Number and Description of Pensioners paid out of the above Sum:		
2 Masters.		
4 Nurses.		
1 Laundress.		
1 Assistant Laundress.		
8		
TOTAL GREENWICH SCHOOL - - - - £.	25,335 - -	24,719 - -
TOTAL OF THE WHOLE - - - - £.	128,635 - -	125,367 - -

* In addition to Half-pay.

A B S T R A C T.

	REQUIRED for the Service of the Year 1867/68.	LAST VOTE for the Financial Year 1866/67.
GREENWICH HOSPITAL:		
	£. s. d.	£. s. d.
ESTABLISHMENT AT ADMIRALTY - - - - -	1,267 - -	1,159 - -
OFFICE OF COMPTROLLER OF GREENWICH HOSPITAL ESTATES, &c. - - - - -	1,458 - -	1,443 - -
HOUSEHOLD AND INFIRMARY:		
Salaried Establishment - - - - -	11,316 - -	11,231 - -
Wages - - - - -	9,131 - -	9,636 - -
Repairs and Maintenance of Buildings - - - - -	6,040 - -	4,657 - -
Provisions, Clothing, Bedding, and Stores - - - - -	12,100 - -	12,100 - -
Medicines and Surgical Instruments - - - - -	900 - -	900 - -
Money Allowances to In-Pensioners - - - - -	3,000 - -	3,000 - -
Superannuation Allowances - - - - -	1,631 - -	1,620 - -
£.	46,843 - -	45,746 - -
PENSIONS:		
Greenwich Hospital, Pensions to Flag and other Officers -	5,485 - -	5,490 - -
Ditto - - - - to Seamen - - - - -	49,972 - -	47,912 - -
Greenwich Hospital, Gratuities to Widows of Seamen -	1,000 - -	1,500 - -
£.	56,457 - -	54,902 - -
GREENWICH SCHOOL:		
Salaried Establishment - - - - -	6,370 - -	6,856 - -
Wages - - - - -	3,519 - -	3,393 - -
Repairs and Maintenance of Buildings - - - - -	2,200 - -	1,500 - -
Provisions, Clothing, and Stores - - - - -	12,811 - -	12,650 - -
Medicines and Surgical Instruments - - - - -	100 - -	100 - -
Superannuation Allowances - - - - -	335 - -	220 - -
£.	25,335 - -	24,719 - -
TOTAL - - - £.	128,635 - -	125,367 - -

The whole charge amounts to the sum of One Hundred and Twenty-eight
Thousand Six Hundred and Thirty-five Pounds.

Admiralty, }
15 February 1867.

JOHN S. PAKINGTON.

C. DU CANE.

GREENWICH HOSPITAL AND SCHOOL.

ESTIMATE

FOR

GREENWICH HOSPITAL AND
SCHOOL,

FOR THE YEAR 1867-68.

*Ordered, by The House of Commons, to be Printed,
18 February 1867.*

185

NAVAL RECEIPT AND EXPENDITURE.

1865-66.

COPY of an ACCOUNT of the NAVAL RECEIPT and EXPENDITURE, for
the Year ended the 31st March 1866.

(Prepared in pursuance of Act 9 & 10 Vict. c. 92, s. 2.)

*Ordered, by The House of Commons, to be Printed,
12 February 1867.*

COPY of an ACCOUNT of the NAVAL RECEIPT and EXPENDITURE for the Year

The unappropriated Balance of 38,633 *l.* 15 *s.* 10 *d.*, shown on the Account of Naval Receipt and Expenditure for the Financial Year ended the 31st March 1865, has been withdrawn by the Lords of the Treasury from the Naval Balance at the Exchequer, agreeably with the arrangement approved of by their Lordships, as signified by Mr. G. A. Hamilton's Letter of the 31st March 1866, an attested Copy of which is annexed.

To AMOUNT GRANTED FOR NAVAL SERVICES FOR THE YEAR 1865-66, per Act 28 & 29 Vict. c. 123, under the following Heads: viz.		£.	s.	d.	£.	s.	d.
Vote No. 1. Wages to Seamen and Marines	- - - - -	2,945,006	-	-			
2. Victuals and Clothing for ditto	- - - - -	1,325,694	-	-			
3. Admiralty Office	- - - - -	175,957	-	-			
4. Coast Guard Service, Royal Naval Coast Volunteers, and Royal Naval Reserve	- - - - -	284,395	-	-			
5. Scientific Branch	- - - - -	70,042	-	-			
6. Her Majesty's Establishments at Home	- - - - -	192,415	-	-			
7. Her Majesty's Establishments Abroad	- - - - -	37,332	-	-			
8. Wages to Artificers, &c., employed in Her Majesty's Establishments at Home	- - - - -	1,158,797	-	-			
9. Wages to Artificers, &c., employed in Her Majesty's Establishments Abroad	- - - - -	72,585	-	-			
10. { Section I. Naval Stores for the Building, Repair, and Outfit of the Fleet and Coast Guard	- - - - -	1,134,572	-	-			
{ Section II. Steam Machinery, and Ships built by Contract	- - - - -	564,700	-	-			
11. New Works, Buildings, Machinery, and Repairs	- - - - -	527,985	-	-			
12. Medicines and Medical Stores	- - - - -	64,800	-	-			
13. Miscellaneous Services	- - - - -	103,925	-	-			
14. Half Pay, Reserved Half Pay, and Retired Pay to Officers of the Navy and Royal Marines	- - - - -	698,195	-	-			
15. Military Pensions and Allowances	- - - - -	507,211	-	-			
16. Civil Pensions and Allowances	- - - - -	208,033	-	-			
17. Army Department (Conveyance of Troops)	- - - - -	320,580	-	-			
						10,392,224	- -
To Amount granted on Supplementary Estimate for the year 1865-66, by Act 28 & 29 Vict. c. 123, to provide for the Expenditure in the year ending the 31st of March 1866, under the following Head, viz:—							
Vote No. 18. Greenwich Hospital	- - - - -					63,915	- -
					£.	10,456,139	- -

Admiralty, }
29 November 1866. }

ended the 31st March 1866 ; prepared in pursuance of Act 9 & 10 Vict. c. 92, s. 2.

Votes.		EXPENDITURE, in 1865-66.		GRANTS.	
Nos.		£.	s. d.	£.	s. d.
NAVY EFFECTIVE SERVICES :					
1	BY Wages to Seamen and Marines - - - - -	2,941,489	3 3	2,945,006	- -
2	„ Victuals and Clothing for ditto - - - - -	1,248,579	17 9	1,325,694	- -
3	„ Admiralty Office - - - - -	175,626	14 8	175,957	- -
4	„ Coast Guard Service, Royal Naval Coast Volunteers, and Royal Naval Reserve -	259,262	1 9	284,395	- -
5	„ Scientific Branch - - - - -	58,537	2 8	70,042	- -
6	„ Her Majesty's Establishments at Home - - - - -	187,431	14 11	192,415	- -
7	„ Her Majesty's Establishments Abroad - - - - -	38,040	19 4	37,332	- -
8	„ Wages to Artificers, &c., employed in Her Majesty's Establishments at Home -	1,188,926	16 4	1,158,797	- -
9	„ Wages to Artificers, &c., employed in Her Majesty's Establishments Abroad -	70,264	11 4	72,585	- -
10	„ Section I. Naval Stores for the Building, Repair, and Outfit of the Fleet and Coast Guard - - - - -	1,126,184	19 3	1,134,572	- -
	„ Section II. Steam Machinery and Ships built by Contract - - - - -	400,819	4 3	564,700	- -
11	„ New Works, Buildings, Machinery, and Repairs - - - - -	582,013	8 8	527,985	- -
12	„ Medicines and Medical Stores - - - - -	79,127	10 6	64,800	- -
13	„ Miscellaneous Services - - - - -	159,343	3 10	103,925	- -
NAVY NON-EFFECTIVE SERVICES :					
14	BY Half Pay, Reserved Half Pay, and Retired Pay to Officers of the Navy and Royal Marines - - - - -	685,888	3 7	698,195	- -
15	„ Military Pensions and Allowances - - - - -	501,841	9 4	507,211	- -
16	„ Civil Pensions and Allowances - - - - -	199,893	4 10	208,033	- -
		£.	9,903,870 6 3	10,071,644	- -
FOR THE SERVICE OF OTHER DEPARTMENTS :					
17	BY Army Department (Conveyance of Troops) - - - - -	305,097	18 6	320,580	- -
18	„ Greenwich Hospital (Supplementary Estimates) - - - - -	10,208,968	4 9	10,392,224	- -
		58,374	17 3	63,915	- -
		£.	10,267,343 2 -	10,456,139	- -
BY Amount written off as Irrecoverable, being the Balances due from sundry persons - - - - -		872	5 -	-	-
		£.	10,268,215 7 -	10,456,139	- -
The Surplus Grants on Votes 1, 2, 3, 4, 5, 6, 9, 10 (Section I.), 10 (Section II.), 14, 15, 16, 17, and 18, amount to - - - - -		£. 344,008	16 8		
The Deficiencies on Votes 7, 8, 11, 12, 13, and Balances Irrecoverable, amount to - - - - -		156,085	3 8		
BY Balance of Votes unappropriated - - - - -		187,923	13 -	-	-
		£.	10,456,139 - -	10,456,139	- -

■ Vide Explanations of the causes of the excesses on the other side

Examined,
Charles Vine.

(signed) J. Beeby,
Accountant General of the Navy.

We, the Commissioners for Auditing the Public Accounts, do hereby certify, that this Account, transmitted to us in pursuance of the 2nd section of the Act 9 & 10 Vict. c. 92, has been examined by Officers under our direction; and that, subject to the observations contained in the accompanying Report to the Lords Commissioners of Her Majesty's Treasury, the above is a correct statement of the Naval Receipt and Expenditure for the year ended 31st March 1866, as compared with the Account Books and Vouchers, and other documents from which the Books are prepared.

Dated at the Audit Office, this 14th day of January 1867.

Wm. Dunbar.
C. Macaulay.

Treasury Chambers, Whitehall, S. W.,
31 March 1866.

Sir,

I AM commanded by the Lords Commissioners of Her Majesty's Treasury to acquaint you, for the information of the Lords Commissioners of the Admiralty, that directions have been given for the surrender at the Exchequer, out of the Balance of the Votes for Naval Services for 1865-66, of the sum of 38,633 *l.* 15 *s.* 10 *d.*, in respect of the unexpended balance of the Navy Votes for the year 1864-65.

The Secretary to the Admiralty.

I have, &c.
(signed) *Geo. A. Hamilton.*

SUPPLEMENTARY STATEMENT, per Treasury Letter of 29th August 1860.

The increased charge included under Vote No. 17, Army Department (for Conveyance of Troops and Stores), of the above Account, which has arisen out of the Naval Operations consequent on the Hostilities in China, is - - - - - *£.* 14 1 6

In previous years the Expenditure incurred on account of this Service in excess of the respective grants has been defrayed out of the Vote of Credit for the China War granted by Act 24 & 25 Vict. c. 103, s. 15, but as the unexpended balance of that Vote has been surrendered to the Exchequer by directions of the Lords of the Treasury, the above arrear Expenditure, passed to account in the year 1865-66, has been charged against the current grants of the Department, agreeably with their Letter of the 30th November 1864.

Note.—Affording explanations of the degree to which the Account of the Naval Receipt and Expenditure, for the Financial Year 1865-66, has been affected by the rectification of errors or omissions in the Accounts of previous years, discovered since the closing of such Accounts; inserted in pursuance of the Treasury Letter, dated the 30th April 1864.

VOTE.		DEBITS.			CREDITS.		
		<i>£.</i>	<i>s.</i>	<i>d.</i>	<i>£.</i>	<i>s.</i>	<i>d.</i>
No. 1.	Wages to Seamen and Marines - - - - -	605	4	6	—	—	—
2.	Victuals and Clothing for ditto - - - - -	6,527	3	8	—	—	—
3.	Admiralty Office - - - - -	—	—	—	461	15	4
4.	Coast Guard Service, Royal Naval Coast Volunteers, and Royal Naval Reserve - - - - -	4	—	—	—	—	—
5.	Scientific Branch - - - - -	519	8	2	—	—	—
7.	Her Majesty's Establishments Abroad - - - - -	8	1	—	—	—	—
8.	Wages to Artificers, &c., employed in Her Majesty's Establishments at Home - - - - -	—	9	—	—	—	—
9.	Wages to Artificers, &c., employed in Her Majesty's Establishments Abroad - - - - -	348	1	2	—	—	—
10.	Section I. Naval Stores for the Building, Repair, and Outfit of the Fleet and Coast Guard - - - - -	1,758	14	10	—	—	—
	Section II. Steam Machinery, and Ships built by Contract - - - - -	407	9	9	—	—	—
11.	New Works, Buildings, Machinery, and Repairs - - - - -	89	3	5	—	—	—
12.	Medicines and Medical Stores - - - - -	136	7	—	—	—	—
13.	Miscellaneous Services - - - - -	426	10	—	—	—	—
14.	Half Pay, Reserved Half Pay, and Retired Pay to Officers of the Navy and Royal Marines - - - - -	—	—	—	42	12	8
15.	Military Pensions and Allowances - - - - -	—	2	—	—	—	—
17.	Army Department (Conveyance of Troops) - - - - -	149	15	8	—	—	—
	Balances Irrecoverable - - - - -	756	2	8	—	—	—
<i>£.</i>		11,736	12	10	504	8	—
		504	8	—			
Net Debit relating to Prior Years - - - <i>£.</i>		11,232	4	10			

The above Debits and Credits consist of payments through Cash Accounts not received in time to be included in the Account for the year to which they relate; of suspensions and disallowances removed subsequently to closing the Account for the year in which the payments, if correctly vouched, would have been charged; and of adjustments in the Accounts of previous years, subsequent to the closing of such Accounts.

EXPLANATIONS of the CAUSES of the EXCESSES and SURPLUSES on the
preceding Account.

VOTE No. 1.

WAGES to SEAMEN and MARINES (Surplus) - - £. 3,516 16 9

The surplus upon this Vote is mainly caused by the average number of Seamen and Marines underborne throughout the year; and by the expenditure for Colonial Pay and Field Allowances to Marines in Japan having been less than was anticipated when the Estimate was framed, consequent on the return of the Marine Battalion from Japan.

The surplus which would have been occasioned by these causes is, however, reduced by the payments for Lodging Money to Non-commissioned Officers and Men, Royal Marines, for which inadequate provision was made in the Estimate.

VOTE No. 2.

VICTUALS and CLOTHING for SEAMEN, &c. (Surplus) - £. 77,114 2 3

This surplus arises from its not having been found necessary to purchase Provisions and Stores to the extent provided for, in consequence of the numbers employed in the Fleet and Coast Guard afloat having been less than those estimated for; from the amount recovered from other Departments of Government for supplies to them having been larger than was anticipated; from the cost of Freight for keeping up supplies for Foreign Depôts not having been so great as provided for; from the supplies of Cloth for Marine Clothing by the War Department having been less than estimated for; and from many articles of Marine Clothing having been obtained at lower prices than had been anticipated; also, from the sums recovered from Seamen's Wages on account of issues of Clothing to them in the course of the year being greater than the Expenditure incurred for the purchase of the same.

VOTE No. 3.

ADMIRALTY OFFICE (Surplus) - - - - £. 330 5 4

This surplus is caused by the Law Charges having been less than provided for in the Estimate, which was based on the expenditure of previous years.

The surplus would have been greater, but for the increased Travelling Expenses of Officers of the Admiralty Department more frequently visiting the Dockyards in connection with the Works and Expenditure at those Establishments.

VOTE No. 4.

COAST GUARD SERVICE, ROYAL NAVAL COAST VOLUNTEERS, } £. 25,132 18 3
and ROYAL NAVAL RESERVE (Surplus) - - - - }

This surplus is caused by the number of men of the Royal Naval Reserve who have claimed retainers and presented themselves for drill having fallen short of the number estimated for; by the amount paid to Civilians on the Coast Guard Establishments on shore having been less than was provided for, owing to vacancies caused by retirement having been filled up by Men borne on Ships' Books; and by the reduction of the force of Royal Naval Coast Volunteers.

VOTE No. 5.

SCIENTIFIC BRANCH (Surplus) - - - - £. 11,504 17 4

This surplus mainly arises from the Survey of the Bermudas having been discontinued sooner than was expected; from the partial suspension of that in the West Indies; and from a larger provision for stores under this Vote than was necessary; from the demand by foreign governments and the public for charts having been less this year; from the expenditure for Lectures and Professorial Charges at the School of Naval Architecture having been less than provided for; and, from diminished Expenditure to Temporary Assistants in the Hydrographical Department, engaged in preparing "Sailing Directions."

VOTE No. 6.

HER MAJESTY'S ESTABLISHMENTS AT HOME (Surplus) £. 4,983 5 1

This surplus is caused by casualties arising from Deaths and Removals of Officers at the several Naval, Victualling, and Medical Establishments, by the employment of writers, paid under Vote No. 8, Wages, &c.; in the vacancies arising by the Promotion, &c., of Temporary Clerks; and, by decreased expenditure for Lodging Money to Officers of the Royal Marines, owing to the completion and occupation of new barracks.

VOTE No. 7.

HER MAJESTY'S ESTABLISHMENTS ABROAD (Excess) £. 708 19 4

This excess is occasioned by the absence of Officers and Clerks of the Naval Establishment at Hong Kong, owing to sickness, and the consequent employment of substitutes at high rates of pay.

VOTE No. 8.

WAGES TO ARTIFICERS, &c., EMPLOYED IN HER MAJESTY'S }
ESTABLISHMENTS AT HOME (Excess) - - - - } £. 30,129 16 4

The excess on this Vote is almost wholly occasioned by the payments for Wages to men employed in the several dockyards, and at private yards, in breaking up old ships, for which no provision was taken under this Vote, the expenditure having been charged against the proceeds of ships sold previously to the receipt of Treasury Letter dated 28th of November 1865, which directed that the expense should be transferred to this Vote.

The Treasury sanction was obtained by letter of the 19th April 1866, for an excess on account of this service, to the extent of 28,000 l.

VOTE No. 9.

WAGES, &c., TO ARTIFICERS, &c., EMPLOYED IN HER}	£. 2,320	8	8
MAJESTY'S ESTABLISHMENTS ABROAD (Surplus) - -}			

This surplus is caused by fewer workmen having been required at Malta and Bermuda, owing to reduced exigencies of the fleet.

VOTE No. 10 (Section I.)

NAVAL STORES FOR THE BUILDING, REPAIR, AND OUTFIT}	£. 8,387	-	9
OF THE FLEET AND COASTGUARD (Surplus) - -}			

This surplus is occasioned by the failure of the manufacturers of iron plates to deliver the quantity required before the end of the financial year.

The surplus which would have arisen from this circumstance is, however, greatly reduced by an excess on the item for coals, the consumption of which rendered it necessary to provide greater supplies than were estimated as likely to be required and paid for within the financial year 1865-66.

VOTE No. 10 (Section II.)

STEAM MACHINERY and SHIPS BUILT BY CONTRACT (Surplus) -	£. 163,880	15	9
---	------------	----	---

This surplus is caused by it having been decided not to build the Iron-cased Ships provided for; by the "Northumberland" and "Waterwitch" gunboat not having been completed, as anticipated; and by the expenditure on account of Experiments having been less than provided for.

The surplus which would have been occasioned by these causes is, however, reduced by an excess caused by the expenditure for Repairs by Contract and Private Agreement, of Ships Abroad, having been beyond that provided for.

VOTE No. 11.

NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS (Excess)	£. 54,628	8	8
---	-----------	---	---

This excess is mainly owing to the following causes, viz.:

Greater progress having been made in the Extension of the Yard at Portsmouth than was contemplated when the Estimate was prepared.

The completion within the year of the lowering of the floor of No. 4 Dock at that yard, the same being urgently required for the service; and

From increased expenditure beyond the amount provided on account of the works at Malta.

The Treasury sanction was obtained by letters of the 24th and 31st of March 1866, for the above excesses.

VOTE No. 12.

MEDICINES AND MEDICAL STORES (Excess) -	£. 14,327	10	6
---	-----------	----	---

This excess arises from additional expenditure having been incurred for the Sick in China and on other foreign stations; from increased Prices of Provisions, Wine, Clothing, and Medicines supplied to Naval Hospitals, as compared with those of former years; from the Local Purchases at Naval Hospitals at home having been claimed and paid closer up; and, from the expenditure incurred in carrying out the Contagious Diseases Act of 1864 having been in excess of the amount provided.

The Treasury sanction was obtained by letter dated the 6th of November 1865, for 2,380*l.* of the excess occasioned by this latter cause.

VOTE No. 13.

MISCELLANEOUS SERVICES (Excess) - - - £. 55,418 3 10

This excess arises from the increased number of Passages by Contract Vessels, chiefly on the China and East India Stations; for Compensation for Losses of Clothing, &c., to officers and crews of Her Majesty's Ships "Bombay" and "Bulldog;" from Compensation paid for Damage done to the "Brackenholm" by Her Majesty's Ship "Supply;" from Expenses of Committees in connection with the Contagious Diseases Act, on Floating Obstructions, on Gun Cotton, and on the Pay and Position of Medical Officers; from more having been paid for Stamps on Contracts, &c., and for Public Advertisements than was provided for, the Estimate being based upon the average of previous years; from loss by Exchange, mainly arising from the fixed value of the Mexican Dollar having been raised; from increased Expenditure for Lodging Allowance to Officers compelled to reside on shore, over the amount provided for, as based upon the payments in previous years; and from expenses attendant on the Visit of the French Fleet to England, for which no provision was made in the Estimates, but which were directed to be borne by the Naval Department by Treasury letter of the 6th December 1865.

VOTE No. 14.

HALF PAY, RESERVED HALF PAY, AND RETIRED PAY TO } £. 12,306 16 5
OFFICERS OF THE NAVY AND ROYAL MARINES (Surplus) }

This surplus is occasioned by a less number of Officers having been placed on Half Pay than was provided for when the Estimate was framed.

VOTE No. 15.

MILITARY PENSIONS AND ALLOWANCES (Surplus) - £. 5,369 10 8

This surplus is occasioned by the average number of Pensioners, through casualties, having been less than the number upon which the Estimate was framed, and from Pensions unclaimed.

The surplus which would have appeared on this Vote is, however, reduced by an excess over the amount provided for Greenwich Out-pensions, occasioned by a large number of Pensioners having reverted to their Naval Out-pensions in October 1865, under the new regulations for the management of Greenwich Hospital, for the payment of whose Pensions no provision was made, but for which number 15*l.* per head a year will be paid into the Exchequer out of the Funds of Greenwich Hospital.

VOTE No. 16.

CIVIL PENSIONS AND ALLOWANCES (Surplus) - £. 8,139 15 2

This surplus is occasioned by the average number of Pensioners, through Casualties, having been less than the number upon which the Estimate was framed, and from Pensions unclaimed.

VOTE No. 17.

ARMY DEPARTMENT (CONVEYANCE OF TROOPS), Surplus, £. 15,482 1 6

This Surplus is caused by the removal of Troops from New Zealand not having taken place so early as anticipated and provided for; from the Purchase Money of the "Alexandra" Steam Transport, in New Zealand, provided for in the Estimates of 1865-66, having been charged to the Vote for 1864-65, in consequence of the Treasury Directions of the 5th of June 1865, as to the mode of bringing to account charges preferred through departmental claims.

This Saving has, however, been reduced through the cost of bringing home Invalids from China, and of moving Troops between England and Ireland, not provided for.

VOTE No. 18.

GREENWICH HOSPITAL, Surplus - - - - - £ 5,540 2 9

This Surplus is occasioned from provision having been taken in the Supplementary Estimate for 1865-66, for the Maintenance of 600 In-Pensioners, whereas the average number borne for the six months ending the 31st March 1866, was only 390; and from the Pensions to Flag Officers and others not having generally been granted until the 1st of April 1866.

The surplus on this Vote would have been greater but for the increased Expenditure on account of Money Allowances to In-Pensioners, who elected to leave Greenwich Hospital, beyond the numbers anticipated.

BALANCES IRRECOVERABLE - - - - - £. 872 5 -

For balances due on the Cash Accounts of the Officers acting as Paymasters of Her Majesty's ships, "Ringdove," "Psyche," "Dasher," "Nereus," and "Snap," found to be irrecoverable; for Public Money lost on the Wreck of the slave "Enchantress;" for Public Money lost overboard from Her Majesty's Ship "Flora," during a heavy swell; for Balance due on the Cash Account of the Assistant Paymaster in charge at Shanghai, on account of a Payment for which a sufficient Voucher was not produced; and for Public Money lost through the defalcation of a Marine Pay Serjeant, at Chatham. On the other hand, the Gross Charge upon this head for the year 1865-66, of 2,642 *l.* 13 *s.* 4 *d.*, has been reduced by a Credit amounting to 1,770 *l.* 8 *s.* 4 *d.*, a portion of the amount written off as irrecoverable, in the year 1864-65, on the cash account of the Paymaster of the "Ringdove," which is now accounted for by the production of Vouchers.

N.B.—The temporary application of the sum of 156,085 *l.* 3 *s.* 8 *d.* out of the Surpluses under Votes Nos. 1, 2, 3, 4, 5, 6, 9, 10, 14, 15, 16, 17, and 18, to cover the deficiencies on the Grants for the Services above-mentioned, has been sanctioned by Treasury Letter of the 28th November 1866, with reference to the Provisions of the 27th Clause of Act 28 & 29 Vict. c. 123.

MEMORANDUM.

THE Old Store and Extra Receipt Moneys for the Year 1865-66, amounting to 138,035 *l.* 8 *s.* 10 *d.* (as brought to account under the following detailed Heads), have been paid over to the Exchequer, in conformity with the Treasury Minute of 2nd May 1848, instead of being appropriated, as heretofore, on the Navy Estimates.

HEADS OF OLD STORE AND EXTRA RECEIPT MONEYS.	Amount of Old Store Moneys.	Amount of Extra Receipts.	TOTAL.	Votes of the Navy Estimates under which formerly Appropriated.
	£. s. d.	£. s. d.	£. s. d.	
Discharges of Seamen and Marines - - - - -	- - -	5,611 1 6	} 5,697 19 2	No. 1.
Barrack Schools (Contributions towards Education) - - - - -	- - -	86 17 8		
Old Stores, Victualling (Sales) - - - - -	11,527 2 3	- - -	} 18,324 5 2	No. 2.
Old Seamen's Clothing, Marine Stores, &c. (Sales) - - - - -	6,797 2 11	- - -		
Sale of Charts - - - - -	- - -	5,099 10 9	} 5,114 10 9	No. 5.
Instruction of Marine Cadets - - - - -	- - -	15 - -		
Barrack Rents (Rents of Canteens and Shops) - - - - -	- - -	110 5 11	110 5 11	No. 6.
Old Stores, Naval (Sales) - - - - -	42,101 1 4	- - -	} 77,480 2 8	No. 10.
Proceeds of the Sale of Old Ships - - - - -	13,524 2 8	- - -		
Per-centage on Cabin and Superintendents' Furniture, for its use - - - - -	- - -	1,776 1 8		
Repayments, Naval (Supplies of Stores) - - - - -	- - -	20,086 17 -		
£. - - -	- - -	21,862 18 8		
Less, Sale of Ships—		8 - -		
Debit Balance, arising from a Payment made at Hong Kong for advertising the Sale of Her Majesty's Ship "Naiad" - - - - -	55,625 4 -	21,854 18 8		
Old Stores, Medical (Sales) - - - - -	273 10 1	- - -	} 432 5 7	No. 12.
Repayments, Medical (Supplies of Stores) - - - - -	- - -	158 15 6		
Penalties, Fines, &c. - - - - -	- - -	3,361 11 4	} 26,169 11 8	No. 13.
Sale of Naval Property - - - - -	- - -	14,977 10 6		
Rents of Naval Premises - - - - -	- - -	7,288 12 8		
Per-centage on Port Admiral's Furniture, for its use - - - - -	- - -	187 18 1		
Miscellaneous Receipts - - - - -	- - -	353 19 1		
Contributions from Naval Prize Fund - - - - -	- - -	4,000 - -	4,000 - -	No. 15.
Old Stores, Army Service (Sales of Transport Stores) - - - - -	706 7 11	- - -	706 7 11	No. 17.
Old Store Moneys - - -	- - £. 74,929 7 2	} £. 138,035 8 10		
Extra Receipts - - -	- - 68,106 1 8			

Examined,
Charles Vine.

(signed) J. Beeby,
Accountant General of the Navy.

REPORT of the COMMISSIONERS OF AUDIT on the foregoing ACCOUNT.

(No. 366.)

My Lords,

Audit Office, Somerset House, London, W. C.,
14 January 1867.

I. WE have the honour to transmit the accompanying copy of the Account of the Receipt and Expenditure for Naval Services for the year ended 31st March 1866, forwarded to us by the Lords Commissioners of the Admiralty, in pursuance of the 2nd section of the Act 9 & 10 Vict. c. 92, and examined by officers under our directions.

II. The total sum appropriated by the Act 28 & 29 Vict. c. 123, to Naval Services in the year 1865-6, was 10,456,139 *l.*, and the Total Expenditure in that year is shown by the accompanying Account to have been 10,268,215 *l.* 7 *s.*

III. The differences between the sums voted and those chargeable to each of the separate Votes, as shown by the Naval Account, and as resulting from our examination of the Account, will be found in the Statement A. appended to this Report.

IV. The deficiency on certain grants for which we apprehend that provision will have to be made by Parliament, appears, from the Naval Account, to be 156,085 *l.* 3 *s.* 8 *d.*, and this sum has been temporarily defrayed, under your Lordships' authority, out of the surplus of 344,008 *l.* 16 *s.* 8 *d.*, on other grants, in accordance with the terms of the Act 28 & 29 Vict. c. 123, s. 27; as to the correctness of which latter sum, we would refer to the concluding paragraph of this Report.

V. We have ascertained that the amount of old store and extra receipt moneys, as shown in the Memorandum attached to the Account, has been paid into the Exchequer, as follows:—

											£.	s.	d.
September 1865	-	-	-	-	-	-	-	-	-	-	40,775	4	11
December „	-	-	-	-	-	-	-	-	-	-	55,995	14	2
March 1866	-	-	-	-	-	-	-	-	-	-	21,422	8	8
June „	-	-	-	-	-	-	-	-	-	-	19,842	1	1
										£.	138,035	8	10

VI. In accordance with your Lordships' directions, a note has been appended to the Account, showing under each Vote the degree to which the Account of the Financial year has been affected by the rectification of errors or omissions in the Accounts of previous years.

VII. In our Report of the 31st January 1866, upon the Naval Accounts for the year 1864-5, we transmitted a copy of the Correspondence which had passed as to the date when payments made by one Department for another should be recorded, and would again call attention to the fact that, in certain cases, the Admiralty has not followed the rule laid down by your Lordships, with regard to such payments, viz., that the date of record should be governed by the date when the payment was actually made, not by the date when the repayment to the Department performing the service took place.

VIII. Detailed Vouchers have not been produced to us in support of a payment of 15,165 *l.* 7 *s.* to the Crown Agents for the Colonies, in respect of the Colonial Steamer "Victoria," and we transmit a copy of the correspondence which has passed on this subject.

IX. During the period of this Account, the French Government has been relieved to the extent of 1,363 *l.* 8 *s.* in respect of a claim for coals supplied at Shanghai, the document in support of the claim having been "endorsed with an illegible signature whose identity it has been found impossible to establish, in spite of every effort that has been made in referring it to the examination of all the Civil and Military authorities serving on the China Station in 1862."

X. A sum of 250 *l.* received as Fees from Students (not being Dockyard Pupils) attending the School of Naval Architecture, has, we are informed by the Admiralty, been carried to the credit of Vote 5, under the authority of a Treasury Letter of the 27th September 1865. As however we have no evidence in the printed Estimates presented to Parliament, that Vote 5, which includes the provision for the School of Naval Architecture, was intended to be other than a gross Vote, we are of opinion that this sum of 250 *l.* should not have been carried to the credit of Vote 5, but should have been carried to the credit of the Exchequer as an Extra Receipt.

No. 967, 20 Nov. 1866.
No. 1,619, 5 Dec. 1866.

We annex a copy of the correspondence which has passed between this Board and the Admiralty upon the subject.

No. 999, 1 Dec. 1866.
No. 1,777, 9 Jan. 1867.

XI. A copy of the correspondence between this Board and the Admiralty, respecting the amount of expenditure relating to the year 1865-6, which is not included in the account, is also transmitted.

XII. Should our views be adopted, the amount to be provided for by Parliament (Statement A.) will be 156,085 *l.* 3 *s.* 8 *d.*, and the sum to be surrendered to the Exchequer would be 343,758 *l.* 16 *s.* 8 *d.*, instead of 344,008 *l.* 16 *s.* 8 *d.*

The Lords Commissioners of
Her Majesty's Treasury,
&c. &c. &c.

We have, &c.
(signed) *Wm. Dunbar,*
C. Macaulay.

(A.)

STATEMENT showing a Comparison between the Sums Granted and Expended in respect of NAVAL SERVICES for the Year 1865-66.

VOTES.	GRANTS, 1865-6.	Admiralty Statements.				Auditor's Statements.				Paragraph in Auditor's Report ex- plaining differences.
		Expenditure.	Less than Grant.	More than Grant.		Expenditure.	Less than Grant.	More than Grant.		
	<i>£.</i> <i>s.</i> <i>d.</i>	<i>£.</i> <i>s.</i> <i>d.</i>	<i>£.</i> <i>s.</i> <i>d.</i>	<i>£.</i> <i>s.</i> <i>d.</i>		<i>£.</i> <i>s.</i> <i>d.</i>	<i>£.</i> <i>s.</i> <i>d.</i>	<i>£.</i> <i>s.</i> <i>d.</i>		
Vote 1 - - -	2,945,006 - -	2,941,489 3 3	3,516 16 9	- -		2,941,489 3 3	3,516 16 9	- -		X.
" 2 - - -	1,325,694 - -	1,248,579 17 9	77,114 2 3	- -		1,248,579 17 9	77,114 2 3	- -		
" 3 - - -	175,957 - -	175,626 14 8	330 5 4	- -		175,626 14 8	330 5 4	- -		
" 4 - - -	284,395 - -	259,262 1 9	25,132 18 3	- -		259,262 1 9	25,132 18 3	- -		
" 5 - - -	70,042 - -	58,537 2 8	11,504 17 4	- -		58,787 2 8	11,254 17 4	- -		
" 6 - - -	192,415 - -	187,431 14 11	4,983 5 1	- -		187,431 14 11	4,983 5 1	- -		
" 7 - - -	37,332 - -	38,040 19 4	- -	708 19 4		38,040 19 4	- -	708 19 4		
" 8 - - -	1,158,797 - -	1,188,926 16 4	- -	30,129 16 4		1,188,926 16 4	- -	30,129 16 4		
" 9 - - -	72,585 - -	70,264 11 4	2,320 8 8	- -		70,264 11 4	2,320 8 8	- -		
" 10, 1st section -	1, 34,572 - -	1,126,184 19 3	8,387 - 9	- -		1,126,184 19 3	8,387 - 9	- -		
" 10, 2nd section	564,700 - -	400,819 4 3	163,880 15 9	- -		400,819 4 3	163,880 15 9	- -		
" 11 - - -	527,985 - -	582,613 8 8	- -	54,628 8 8		582,613 8 8	- -	54,628 8 8		
" 12 - - -	64,800 - -	79,127 10 6	- -	14,327 10 6		79,127 10 6	- -	14,327 10 6		
" 13 - - -	103,925 - -	159,343 3 10	- -	55,418 3 10		159,343 3 10	- -	55,418 3 10		
" 14 - - -	698,195 - -	685,888 3 7	12,306 16 5	- -		685,888 3 7	12,306 16 5	- -		
" 15 - - -	507,211 - -	501,841 9 4	5,369 10 8	- -		501,841 9 4	5,369 10 8	- -		
" 16 - - -	208,033 - -	199,893 4 10	8,139 15 2	- -		199,893 4 10	8,139 15 2	- -		
" 17 - - -	320,580 - -	305,097 18 6	15,482 1 6	- -		305,097 18 6	15,482 1 6	- -		
" 18 - - -	63,915 - -	58,374 17 3	5,540 2 9	- -		58,374 17 3	5,540 2 9	- -		
Balances irrecoverable	- - -	872 5 -	- -	872 5 -		872 5 -	- -	872 5 -		
<i>£.</i>	10,456,139 - -	10,268,215 7 -	344,008 16 8	156,085 3 8		10,268,465 7 -	343,758 16 8	156,085 3 8		

(No. 950.)

Sir,

Audit Office, 12 November 1866.

THE Commissioners for Auditing the Public Accounts have had their attention called to a payment of 15,165 *l.* 7 *s.* to the Crown Agents for Colonies, in respect of the Colonial steamer "Victoria," and I am directed to state that inasmuch as no Vouchers in support of the above payment, beyond the statement of the Colonial Government of Victoria of the expenditure incurred, have been produced, the Commissioners will feel it their duty to notice this circumstance in reporting to the Treasury on the Navy Account for the year 1865-6.

Transport Voucher,
15 February 1866.

I am also to add that the above amount includes a sum of 224 *l.* 2 *s.* 8 *d.* in respect of Gunners' Stores, which would appear to be properly chargeable to Army Grants.

W. G. Romaine, Esq., C.B.,
Admiralty.

I have, &c.
(signed) C. L. Ryan.

(No. 1610.)

Gentlemen,

Admiralty, 4 December 1866.

WITH reference to your letter of the 12th ultimo calling attention to a payment of 15,165 *l.* 7 *s.* to the Crown Agents for the Colonies in respect of the Colonial steamer "Victoria," as being unsupported by Vouchers, and also to a payment of 224 *l.* 2 *s.* 8 *d.* included in the above amount for Gunners' Stores, which it is stated appears to be more properly chargeable to Army Funds, I am commanded by my Lords Commissioners of the Admiralty to acquaint you that, in January 1865, their Lordships decided to accept the statement furnished by the Colonial Government of Victoria of the expenditure of the sum in question as a sufficient Voucher on which to make payment to the Colony, a decision which they see no reason to depart from.

With reference to the charge of 224 *l.* 2 *s.* 8 *d.* I am to state that although Gunners' Stores for the use of Her Majesty's ships and troop ships are paid for out of Army Funds, the Gunners' Stores supplied to hired transports the whole expenses of which are considered as incurred for the conveyance of troops, and charged to Vote 17 (Army Department, Conveyance of Troops), are in their Lordships' opinion correctly chargeable to Naval Funds.

The Commissioners of Audit,
Somerset House.

I am, &c.
(signed) Henry G. Lennox.

(No. 967.)

Sir,

Audit Office, 20 November 1866.

THE attention of the Commissioners for Auditing the Public Accounts having been called to an entry in the Admiralty Books crediting Vote 5, 1865-66, "School of Naval Architecture," with 250 *l.* in respect of Fees received from Students (not being Dockyard pupils), I am directed to request that they may be informed of the circumstances under which these Fees are carried to the credit of the Vote rather than to the credit of the Exchequer as an extra receipt.

W. G. Romaine, Esq., Admiralty.

I have, &c.
(signed) C. L. Ryan.

(No. 1619.)

Gentlemen,

Admiralty, 5 December 1866.

IN reply to your letter of the 20th ultimo, No. 967, requesting information as to the circumstances under which the Fees (250 *l.*) received from students, not being Dockyard students, have been carried to the credit of Vote, No. 5, 1865-66, "School of Naval Architecture," rather than to the credit of the Exchequer as an extra receipt, I am commanded by My Lords Commissioners of the Admiralty to inform you that under the Treasury Letter of the 27th September 1865, approving of the principle contained in the letter from the Science and Art Department of the 3rd August 1865, of these fees being appropriated in aid of certain professional charges, the amount so realised has been apportioned accordingly, not only in the year 1865-66, but in that of the previous year 1864-65, to which appropriation in the latter year no exception was taken by the Board of Audit; and I am to observe, that as the amount received from these Fees was inadequate to meet the authorised Fee allowances due to these officers, the difference had to be borne by the Naval Votes, in which no provision was taken for such charges.

It is considered therefore both in point of principle, and in accordance with the arrangement for defraying the cost of the School of Naval Architecture, that these Fees have been properly carried to the credit of the Vote No. 5, on account of that establishment, rather than paid into the Exchequer as an extra receipt.

The Commissioners of Audit,
&c. &c. &c.

I have, &c.
(signed) *Henry G. Lennox.*

(No. 999.)

Sir,

Audit Office, 1 December 1866.

I AM directed by the Commissioners for Auditing the Public Accounts, with reference to the Account of Naval Receipt and Expenditure for the year 1865-66, transmitted in Lord Henry Lennox's letter of 30th ultimo to request that this Board may be furnished with a statement of the number and amount of the Accounts relating to the year 1865-66, received in office, which have not been examined and included in the Account rendered for that year; also a statement of the Accounts which had not been received in office when the Account for the year 1865-66, was closed.

W. G. Romaine, Esq.,
&c. &c. &c.

I have, &c.
(signed) *C. L. Ryan.*

(No. 1777.)

Sir,

Admiralty, 9 January 1867.

WITH reference to your letter of the 1st ultimo, No. 999, I am commanded by the Lords Commissioners of the Admiralty to acquaint you for the information of the Commissioners for Auditing the Public Accounts that all the Cash Accounts (4,885 in number) of Naval Accountants for the year 1865-66, received in office have been examined, and the expenditure, amounting to 5,596,670 *l.* 15 *s.* 7 *d.* included in the Parliamentary Naval Accounts for that year, and that the following is a statement of the only Accounts which had not been received in office when the Account for the year 1865-66 was closed; viz.—

From Her Majesty's Ship	Period.	Amount.
		£. s. d.
" Buzzard " - - - -	From August 1865 to October 1865, and January 1866 - - - -	2,679 1 5
" Investigator " - - -	From November 1864 to March 1865, and August and September 1865 -	3,265 6 5
South Australian Survey -	For Christmas Quarter 1865 - - -	480 4 8
	TOTAL - - - £.	6,424 12 6

I am further to acquaint you that every endeavour has been made to obtain the Accounts in question in time to be included in the Account for the year to which they relate, but without effect. The Accounts of Her Majesty's ship " Buzzard " were received on the 22nd November, and the South Australian Survey Account on the 14th December last.

The Secretary, Audit Office.

I am, &c.
(signed) *W. G. Romaine.*

(906/67.)

COPY of TREASURY MINUTE, dated 7th February 1867, on the foregoing Report of the Commissioners of Audit.

READ Report of the Commissioners of Audit on the Appropriation Account of the Vote for Navy Services for the year 1865-66.

The only points which appear to call for observation are those adverted to in paragraphs 7 and 10 of the Report.

The first refers to the cases of certain payments for Non-effective Services, made by Treasury Chest Officers Abroad, which are recorded against the Vote in the books of the Admiralty, at the dates of the repayments of such sums out of Navy Votes, instead of at the dates when they were advanced by the Treasury Chest Officers.

My Lords have before them the correspondence on this subject noted in the margin.

This question was the subject of evidence before the Select Committee of Public Accounts of last Session on the Navy Account for the year 1864-65, having been referred to in the Report of the Commissioners of Audit of 2nd December 1865 (alluded to in the above correspondence), in which they state also that the objection raised applies equally to the advances made by the Revenue Departments on account of Army and Navy Services.

My Lords have also before them the correspondence which took place with this department and the War Office, the Admiralty and the Commissioners of Audit, in 1865, on this subject, which led to an alteration in the mode of charge in the Army Accounts, and to the letter from this department of 12th February 1866 to the Commissioners of Audit, in which, for the reasons stated therein, my Lords decided that it would not be advisable to make any alteration in the Navy Accounts.

On fuller consideration of this question, my Lords are of opinion that it is not expedient to alter the principle of charge which has been followed without variation during the last 35 years. When the change in principle was sanctioned by the House of Commons by which provision was made for the payment of such sums only as should come in course of payment in the year—which took place in 1833-34 as regards the Navy, and in 1846-47 as regards the Army and Ordnance—provision was made in the Estimates for Non-effective Services according to the principle of charge which has been followed ever since. Reduced Grants were therefore voted in that year, and the surplus of prior Grants was surrendered to the Exchequer.

If the principle of charge were to be again altered, more especially as regards the Vouchers for Non-effective Services cashed by the Revenue Officers, it would be necessary to submit to Parliament additional Votes, to a considerable amount, in order to carry out the change. My Lords consider that this course would be objectionable, and that the established principle of charge for these Services should not be disturbed.

In paragraph 10 of the Report, reference is made to the application, in aid of Vote 5, of the fees received in the School of Naval Architecture (the estimated expenses of which were included in that Vote).

This is stated by the Admiralty to have been done under the authority of a Treasury Letter to the Science and Art Department of 27th September 1865.

There appears, however, to have been a misapprehension on this point. The letter in question only sanctioned (as a provisional arrangement for one year) the payment, to the principal and vice-principal of the school, of a certain proportion of the fees received from private pupils.

Provision for the salaries of these and other officers of the school is now made in the Civil Service Estimates (Class IV., Science and Art Department), and my Lords have under their consideration the question as to the mode of dealing with these fees in future.

As any alteration in the Navy Account for the year 1865-66, in regard to the manner in which the fees have been brought to account, would merely have the effect of diminishing the amount to be surrendered to the Exchequer as a saving by this Board, and of increasing by an equal amount the extra receipts to be paid to the Exchequer by the Admiralty, my Lords do not consider it necessary to alter the account.

Let a copy of this Minute be transmitted to the Admiralty and the Commissioners of Audit.

Let the Report, with the Account and Correspondence, and a copy of this Minute, be laid before the House of Commons.

Audit Office Reports of
22 Feb. and 13 July
1866, and Admiralty
Letter of 3 July 1866.
3,524/66.
11,700/66.
11,070/66.

NAVAL RECEIPT AND EXPENDITURE.

1865-66.

COPY of an ACCOUNT of the NAVAL RECEIPT
and EXPENDITURE, for the Year ended the
31st March 1866.

(Prepared in pursuance of Act 3 & 10 Vict. c. 92, s. 2.)

Ordered, by The House of Commons, to be Printed,
12 February 1867.

30.

Under 2 oz.

N A V Y.

1 8 6 5 - 6 6.

STATEMENT of the SAVINGS and DEFICIENCIES upon the GRANTS for NAVY SERVICES, in the Year ended the 31st day of March 1866; showing all Cases in which the Navy Department has obtained the Sanction of the Treasury to Expenditure not provided for in the Grants for that Year, together with Copies of the Representations made to the Treasury by the Board of Admiralty; also the BALANCE SHEET, showing the Ledger Balances on the 30th September 1866, the Date on which the Annual Account of Naval Receipt and Expenditure for the Year 1865-66 was Closed.

(PRESENTED PURSUANT TO ACT 28 & 29 VICT. c. 123, s. 27.)

Ordered, by The House of Commons, to be Printed,
12 February 1867.

My Lords,

Audit Office, 22 January 1867.

WE have the honour to lay before your Lordships the accompanying Statement of the Savings and Deficiencies upon the Grants for Naval Services in the year ended the 31st of March 1866, which has been transmitted to us in pursuance of your Lordships' directions, communicated to us in Mr. Peel's letter of the 21st of June 1864.

The Statement is accompanied by a Balance Sheet, showing the Ledger Balances on the day on which the Account was closed.

The Statement and Balance Sheet have been examined under our directions, and we beg leave to refer your Lordships to our Report of the 14th instant, No. 366, on the Abstract Account rendered under 9 & 10 Vict. c. 92, as applying equally to the Statement herewith transmitted.

We have, &c.

(signed) *Wm. Dunbar.*
C. Macaulay.

The Lords Commissioners
of Her Majesty's Treasury, &c. &c. &c.

NAVY.

STATEMENT of the SAVINGS and DEFICIENCIES upon the GRANTS for NAVY SERVICES, for the Year
- ended 31st March 1866.GENERAL STATEMENT of the SUMS EXPENDED, compared with the SUMS GRANTED, under the following Votes, for
NAVY SERVICES, in the Year ended 31st March 1866, showing the SAVING or DEFICIENCY upon each General Vote.

No. of Vote.	TITLE OF VOTE.	EXPENDITURE, 1865-66.	GRANTS.	SAVINGS.	DEFICIENCIES.	Reference to Explanatory Statement.
	NAVY EFFECTIVE SERVICES:	£. s. d.	£. s. d.	£. s. d.	£. s. d.	
1	Wages to Seamen and Marines - - - -	2,941,489 3 3	2,945,006 - -	3,516 16 9	- - -	4
2	Victuals and Clothing for ditto - - - -	1,248,579 17 9	1,325,694 - -	77,114 2 3	- - -	6
3	Admiralty Office - - - -	175,626 14 8	175,957 - -	330 5 4	- - -	8
4	Coast Guard Service, Royal Naval Coast Volun- teers, and Royal Naval Reserve - - - -	259,262 1 9	284,395 - -	25,132 18 3	- - -	10
5	Scientific Branch - - - -	58,537 2 8	70,042 - -	11,504 17 4	- - -	12
6	Her Majesty's Establishments at Home - -	187,431 14 11	192,415 - -	4,983 5 1	- - -	14
7	Her Majesty's Establishments Abroad - -	38,040 19 4	37,332 - -	- - -	708 19 4	16
8	Wages to Artificers, &c., employed in Her Majesty's Establishments at Home - - -	1,188,926 16 4	1,158,797 - -	- - -	30,129 16 4	16
9	Wages to Artificers, &c., employed in Her Majesty's Establishments Abroad - - -	70,264 11 4	72,585 - -	2,320 8 8	- - -	22
10 { Section I.	Naval Stores for the Building, Repair and Outfit of the Fleet and Coast Guard - - - -	1,126,184 19 3	1,134,572 - -	8,387 - 9	- - -	22
10 { Section II.	Steam Machinery, and Ships built by Contract -	400,819 4 3	564,700 - -	163,880 15 9	- - -	24
11	New Works, Building, Machinery and Repairs -	582,613 8 8	527,985 - -	- - -	54,628 8 8	26
12	Medicines and Medical Stores - - - -	79,127 10 6	64,800 - -	- - -	14,327 10 6	52
13	Miscellaneous Services - - - -	159,343 3 10	103,925 - -	- - -	55,418 3 10	54
	NAVY NON-EFFECTIVE SERVICES:					
14	Half-Pay, reserved Half-Pay, and Retired Pay to Officers of the Navy and Royal Marines - -	685,888 3 7	698,195 - -	12,306 16 5	- - -	60
15	Military Pensions and Allowances - - -	501,841 9 4	507,211 - -	5,369 10 8	- - -	60
16	Civil Pensions and Allowances - - - -	199,893 4 10	208,033 - -	8,139 15 2	- - -	62
	£.	9,903,870 6 3	10,071,644 - -	322,986 12 5	155,212 18 8	
	SERVICE OF OTHER DEPARTMENTS:					
17	Army Department (Conveyance of Troops) -	305,097 18 6	320,580 - -	15,482 1 6	- - -	62
	£.	10,208,968 4 9	10,392,224 - -	338,468 13 11	155,212 18 8	
18	Greenwich Hospital (Supplementary Estimate) -	58,374 17 3	63,915 - -	5,540 2 9	- - -	64
	£.	10,267,343 2 -	10,456,139 - -	344,008 16 8	155,212 18 8	
	Amount written off as irrecoverable - - -	872 5 -	- - -	- - -	872 5 -	66
	£.	10,268,215 7 -	10,456,139 - -			
	TOTAL SAVINGS - - - £.			344,008 16 8		
	TOTAL DEFICIENCIES - - - £.				150,085 3 8	

The Treasury sanction was obtained for a portion of the above Excesses upon Votes Nos. 8, 11, 12, and 13. As the Excesses appearing upon the other Votes could only be known upon the Account for the Year being closed in November 1866, the Treasury sanction for the approval of such was applied for as usual upon the transmission of the Abstract Account for the Year to that Department, and has been given in Treasury Letter of 28th November 1866.

The temporary application of 156,085 l. 3 s. 8 d. out of the Surpluses under Votes Nos. 1, 2, 3, 4, 5, 6, 9, 10 (Sections I. & II.), 14, 15, 16, 17, and 18, to cover the Deficiencies on the Grants under Votes Nos. 7, 8, 11, 12, 13, and Balances Irrecoverable, has been sanctioned by Treasury Letter of 28th November 1866, with reference to the provisions of the 27th clause of Act 28 & 29 Vict. c. 123.

Copies of Applications made to the Treasury, and of Treasury Replies, appended.

Admiralty,
31 December 1866.

J. Beeby,
Accountant General of the Navy.

The above Account examined and found correct, subject to the observations contained in the Report to the Treasury of the 14th instant, No. 366, on the Account rendered under 9 & 10 Vict. c. 92.

Audit Office, }
22 January 1867. }

Charles Vine.

By order of the Board,
C. L. Ryan, Secretary.

EXPLANATORY STATEMENT of the SUMS EXPENDED, "More or Less" than those ESTIMATED,
together with the Causes of Variation between

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 1.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
WAGES TO SEAMEN AND MARINES:				
Wages to Seamen and Marines Afloat - - -	2,326,578 2 9			
Apprehension of Deserters - - - - -	3,185 4 4	2,637,031 - -	7,096 18 3	- - -
Allowances to Masters in Charge of Warrant Officers' Stores - - - - -	170 14 8			
Expense of Raising Men, and Bounty to Seamen -	687 11 -	200 - -	- - -	487 11 -
Subsistence of Commissioned and Staff Officers of Royal Marines on Shore - - - - -	59,131 14 10			
Salaries, Marine Service - - - - -	1,500 - -	270,199 - -	- - -	455 17 9
Subsistence of Non-commissioned Officers and Privates, Royal Marines, on Shore - - - - -	210,023 2 11			
Prizes for Good Shooting to Royal Marines - -	426 19 2	502 - -	75 - 10	- - -
Recruiting Expenses, Royal Marines - - -	11,078 6 7	9,574 - -	- - -	1,504 6 7
Colonial Pay and Field Allowances to Marines in Japan and San Juan - - - - -	5,948 3 -	11,000 - -	5,051 17 -	- - -
Contingencies, Marine Service - - - - -	22,759 4 -	16,500 - -	- - -	6,259 4 -
£.	2,941,489 3 3	2,945,006 - -	12,223 16 1	8,706 19 4
Saving - - -	£. 3,516 16 9		£. 3,516 16 9	

under each of the Subdivisions of the VOTES included in the foregoing Statement, the EXPENDITURE and the ESTIMATE.

CAUSES OF VARIATION.

Surplus: caused by the Number of Seamen, Boys, and Marines serving afloat, having been, on the Average of the Year, less than that for which Provision was made.

Excess: occasioned by Allowances granted to Officers for raising Boys for the Navy subsequent to the Estimate being framed.

Excess: caused by the Return of the Marine Battalion from Japan towards the end of the Year, and the consequent increased Charge for Subsistence on Shore.

Surplus: caused by the Payments to Marines having been less than the Estimate.

Excess: caused mainly by the Re-engagement of Marines for Service being more numerous than estimated for.

Surplus: occasioned by the Return of the Marine Battalion from Japan.

Excess: caused by the Payments for Lodging Money to Married Non-commissioned Officers and Privates, Royal Marines, allowed to live out of Barracks, for which the Provision made in the Estimate has proved inadequate.

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 2.				
VICTUALS AND CLOTHING FOR SEAMEN AND MARINES:	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Provisions received under Contract, Purchased, &c. -	666,435 15 11	691,529 - -	25,093 4 1	- - -
Savings (Payments for Provisions not taken up) -	157,339 2 10	161,272 - -	3,932 17 2	- - -
Allowances in lieu of Provisions and Fuel, &c. -	170,134 2 2	164,347 - -	- - -	5,787 2 2
Lights and Culinary Fuel for Service Afloat - -	58,911 2 6	65,359 - -	6,447 17 6	- - -
Allowances in lieu of Lights to Officers Afloat - -	17,129 1 4	16,964 - -	- - -	165 1 4
Advances to Officers (Mess Allowances) - - -	34,515 14 5	30,391 - -	- - -	4,124 14 5
Officers' Mess Traps, Furniture, &c. - - -	8,058 13 2	9,825 - -	1,766 6 10	- - -
Victualling Stores received under Contract, &c. -	16,772 1 10	39,053 - -	22,280 18 2	- - -
Freight, Lighterage, and other Charges on Provisions and Victualling Stores - - - - - }	13,092 18 2	18,569 - -	5,476 1 10	- - -
TOTAL, Provisions, &c. - - - £.	1,142,388 12 4	1,197,309 - -	64,997 5 7	10,076 17 11
Saving on Provisions, &c. -	- - £. 54,920 7 8		£. 54,920 7 8	
Carried forward - - - £.	1,142,388 12 4	1,197,309 - -	64,997 5 7	10,076 17 11

the Subdivisions of the Votes included in the foregoing Statement, &c.—continued.

CAUSES OF VARIATION.

Surplus: occasioned by it not having been necessary to Purchase to the extent provided for, in consequence of the numbers employed in the Fleet and Coast Guard Afloat, having been less than those estimated for; also from a larger Number of Officers having been Transferred to the Mess Trap System (under which they Victual themselves), than had been anticipated.

Surplus: the reduction in the Numbers Victualled, referred to above, is also the Cause of this Surplus.

Excess: arising from the Numbers Borne and Paid Compensation as Coast Guard on Shore, being in Excess of those provided for.

Surplus: caused by the Stores required having been obtained at lower Prices than those on which the Estimate was based.

Excess: this small Excess is caused by Officers formerly supplied with Lights in kind, having, during the Year, been granted Allowance in Lieu.

Excess: caused by a larger Number of Officers having been placed on this System than was anticipated in framing the Estimates; and by Officers having been Paid the whole Value of their Rations in Money, instead of being supplied with Mess Traps in lieu of a portion thereof.

Surplus: caused by the Payment in Money in lieu of Mess Traps to a Number of Officers having rendered the Expenditure of the full Amount Voted unnecessary.

Surplus: caused by smaller Purchases than those Provided for having been found sufficient to meet the Wants of the Service, and by the Amount recovered from other Departments of Government, for Supplies to them, having been larger than was anticipated.

Surplus: owing to the cost of keeping up the supplies for Foreign Depôts not having been so great as was provided for.

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 2.				
VICTUALS AND CLOTHING FOR SEAMEN AND MARINES— <i>continued.</i>	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Brought forward - - -	1,142,388 12 4	1,197,309 - -	64,997 5 7	10,076 17 11
Seamen's Clothing, Soap, and Tobacco - - -	35,084 15 11	40,555 - -	5,470 4 1	- -
Marine Clothing and Appointments - - - -	47,596 17 3	65,722 - -	18,125 2 9	- -
Allowances in lieu of Marine Clothing - - -	4,819 17 7	5,855 - -	1,035 2 5	- -
Marine Barrack Stores - - - - -	18,689 14 8	16,253 - -	- -	2,436 14 8
TOTAL, Clothing - - - £.	106,191 5 5	128,385 - -	24,630 9 3	2,436 14 8
Saving on Clothing - - -	22,193 14 7		22,193 14 7	
£.	1,248,579 17 9	1,325,694 - -	89,627 14 10	12,513 12 7
Saving - - - £. 77,114 2 3			£. 77,114 2 3	
VOTE No. 3.				
ADMIRALTY OFFICE :				
Salaries, Admiralty Office - - - - -	154,710 1 2	154,443 9 2	- -	266 12 -
Wages, Admiralty Office - - - - -	3,699 16 9	3,613 10 10	- -	86 5 11
Rents, Taxes, and Contingencies, Admiralty Office -	11,763 19 1	9,900 - -	- -	1,863 19 1
Legal Department - - - - -	5,452 17 8	8,000 - -	2,547 2 4	- -
£.	175,626 14 8	175,957 - -	2,547 2 4	2,216 17 -
Saving - - - £. 330 5 4			£. 330 5 4	

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued*.

CAUSES OF VARIATION.

Surplus: arising from the abatements from Seamen's Wages for Clothing, and the amounts received from other Departments for Supplies, having been larger than was anticipated; and from less having been expended as Commuted Allowance to continuous service-men than was provided.

Surplus: arising from the supply of Cloth for Marine Clothing by the War Department having been less than estimated for, and from many articles of Marine Clothing having been obtained at lower prices than anticipated.

Surplus: caused by fewer men having disembarked during the year and become entitled to Clothing Money than were expected.

Excess: caused by additional Stores having been required for new Quarters taken into occupation.

Excess: consequent upon increased rates of Salary to Clerks, under Order in Council dated 16th February 1866.

Excess: caused by the wages of a Binder, hitherto paid by the Stationery Office, having been transferred to this Vote after the Estimate was framed.

Excess: arising principally from the increased expenditure as compared with previous years for travelling expenses of officers of the Admiralty Department, more frequently visiting the dockyards in connection with the Works and Expenditure at those Establishments; from payments for the subsistence of Dockyard Officers employed at the Admiralty; and from certain official contingent charges having exceeded the Estimate, based on the average of the three preceding years.

Surplus: caused by diminished Law Charges, as compared with the expenditure, based upon the average of the three preceding years.

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE,	ESTIMATE,	EXPENDITURE,	
	1865-66.	1865-66.	Less than Estimate.	More than Estimate.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.
VOTE No. 4.				
COAST GUARD SERVICE, ROYAL NAVAL COAST VOLUNTEERS, AND ROYAL NAVAL RESERVE:				
Salaries, Coast Guard Office - - - - -	5,163 17 3	5,147 10 -	- -	16 7 3
Wages and Allowances, Coast Guard Office - -	59 18 6	59 2 -	- -	- 16 6
Rents, Rates, and Contingencies, Coast Guard Office	1,123 17 8	1,017 8 -	- -	106 9 8
Pay of Officers and Men, Coast Guard Establish- ments on Shore.	42,019 5 -	47,914 9 -	5,895 4 -	- -
Rents, Rates, and Taxes, Coast Guard Establish- ments on Shore.	33,445 7 8	34,871 17 8	1,426 10 -	- -
Contingencies, Coast Guard Establishments on Shore	29,658 15 5	28,199 13 4	- -	1,459 2 1
Ditto of the Coast Guard and Royal Naval Reserve -	2,952 1 11	3,150 - -	197 18 1	- -
Royal Naval Coast Volunteers - - - - -	20,381 19 3	22,000 - -	1,618 - 9	- -
Royal Naval Reserve - - - - -	124,456 19 1	142,035 - -	17,578 - 11	- -
£.	259,262 1 9	284,395 - -	26,715 18 9	1,582 15 6
Saving - - - £. 25,132 18 3			£. 25,132 18 3	

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Excess: caused by the increased rate of Salary to Clerks under Order in Council dated 16th February 1866.

Excess. This is merely a fractional difference.

Excess: arising from the Expenditure on account of Office Contingencies and Travelling Expenses having been greater than the average of the three preceding Years, upon which the Estimate was based.

Surplus: occasioned by the Vacancies caused by the retirement of Civilians having been filled up by Men borne on Ships' Books.

Surplus: occasioned by diminished Payments for Rent and Lodging Allowances, consequent on the occupation of new Public Buildings, and by the increased employment in the place of Civilians of men borne on Ships' Books to whom a lower rate of Lodging Money is payable.

Excess: caused principally by the Expenditure for Travelling Charges and Allowances to Officers on visiting duty having been greater than the Estimate, which was based on the average Expenditure of the three previous Years, consequent on the several Stations being more frequently inspected.

Surplus: caused by the Expenditure for the Erection and Repair of Batteries having been less than the Estimate which was based on the Expenditure of previous Years.

Surplus: caused by the reduction of the Force during the Year.

Surplus: occasioned by a less number of Men having presented themselves for Drill, and claimed Retainers, than were provided for.

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 5.				
SCIENTIFIC BRANCH:	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Salaries, Royal Observatory - - - - -	2,436 16 -	2,437 - -	- 4 -	—
Contingencies, Royal Observatory - - - - -	2,083 13 11	1,977 - -	- - -	106 13 11
Observatory at the Cape of Good Hope - - -	1,760 18 -	1,674 - -	- - -	86 18 -
Nautical Almanack - - - - -	2,071 3 5	2,189 - -	117 16 7	—
Chronometers - - - - -	940 19 9	1,000 - -	59 - 3	—
Compass Department - - - - -	741 4 1	764 - -	22 15 11	—
Rewards, Experiments, &c., for Scientific Purposes -	272 19 4	500 - -	227 - 8	—
Director of Education, &c. - - - - -	936 10 11	964 - -	27 9 1	—
School of Naval Architecture and Maintenance of } Students in the same - - - - - }	3,127 10 7	4,000 - -	872 9 5	—
Royal United Service Institution - - - - -	300 - -	300 - -	—	—
Libraries and Museums at Haslar and Plymouth -	108 6 6	100 - -	- - -	8 6 6
Salaries and Wages, Hydrographical Department -	5,200 7 9	5,525 - -	324 12 3	—
Drawing, Engraving, Printing, and Mounting Charts	9,988 9 5	12,000 - -	2,011 10 7	—
Contingencies, Hydrographical Department - -	1,143 12 -	1,200 - -	56 8 -	—
Coast and other Surveys - - - - -	23,771 19 6	31,851 - -	8,079 - 6	—
Establishment for Scientific Education at Portsmouth	3,652 11 6	3,561 - -	- - -	91 11 6
£.	58,537 2 8	70,042 - -	11,798 7 3	293 9 11
Saving - - -	£. 11,504 17 4		£. 11,504 17 4	

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Surplus: fractional difference.

Excess; caused by the increased Parochial Rates, and from the Repairs to the Buildings having cost more than was anticipated, owing to an increase in the Wages of Artificers.

Excess; caused by the Clerical assistance for Computing the Meridian work being greater than anticipated.

Surplus: occasioned by the employment of fewer Computers than expected.

Surplus: occasioned by the Repairs of Chronometers having been less than were provided for.

Surplus: caused by the Repairs of Standard Compasses having been less than was expected.

Surplus: caused by claims under this head having been less than estimated for.

Surplus; caused by the Travelling Expenses of the Director of Education for the latter part of the year not having been claimed for before the end of the financial year.

Surplus: caused by the Expenditure for Lectures and Professional Charges and for School Accessories having been less than provided for.

Excess: this is merely the difference between an estimated and an actual Expenditure.

Surplus; caused by the sums paid to Temporary Assistants preparing Sailing Directions having been less than provided for.

Surplus: caused by the sum voted for printing Charts having been more than was required, owing to the decreased demand for Charts by Foreign Governments and by the Public.

Surplus: this is merely the difference between an estimated and an actual Expenditure.

Surplus: arising from the Survey of the Bermudas having been discontinued sooner than was expected: from the partial suspension of that in the West Indies, and from a larger provision for Stores under this head than was necessary.

Excess: occasioned by the Charges for Coals and Furniture having exceeded the amount provided for.

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 6.				
HER MAJESTY'S ESTABLISHMENTS AT HOME:	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Salaries, Naval Yards at Home - - - -	119,497 9 9	122,075 18 11	2,578 9 2	- -
Rents and Taxes - ditto - - - -	5,929 3 10	5,687 10 -	- -	241 13 10
Contingencies - ditto - - - -	4,588 15 6	4,857 11 1	268 15 7	- -
Salaries, Victualling Establishments at Home - -	19,854 19 9	20,102 10 1	247 10 4	- -
Rents and Taxes - - ditto - - - -	1,254 8 8	1,250 12 6	- -	3 16 2
Contingencies - - ditto - - - -	571 8 3	642 17 5	71 9 2	- -
Salaries, Medical Establishments at Home - -	11,888 19 6	12,385 6 9	496 7 3	- -
Rents and Taxes - - ditto - - - -	828 9 2	764 1 -	- -	64 8 2
Contingencies - - ditto - - - -	1,040 18 5	1,088 12 3	47 13 10	- -
Salaries, Transport Establishments at Home - -	913 8 2	911 5 -	- -	2 3 2
Rents, Taxes, and Contingencies - ditto - -	400 6 3	340 15 -	- -	59 11 3
Marine Divisions - - - - -	12,373 17 2	14,133 - -	1,759 2 10	- -
Marine Infirmaries - - - - -	5,626 7 1	5,433 - -	- -	193 7 1
Naval Prison, Lewes - - - - -	2,663 3 5	2,742 - -	78 16 7	- -
£.	187,431 14 11	192,415 - -	5,548 4 9	564 19 8
Saving - - -	£. 4,983 5 1		£. 4,983 5 1	

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Surplus: caused by Retirements, Deaths, and Removals, and Appointment of Successors at lower rates of Salary.

Excess: arising from Lodging Allowances granted to the Cashiers of Portsmouth and Woolwich Dockyards after the Estimates were prepared; from Lodging Allowances paid to Officers of the Dockyards whilst their official Residences were under repair, being beyond the average of previous Years, and from the Sum paid for Water having been in excess of the Amount provided in the Estimates.

Surplus: arising from Expenditure for Travelling Expenses and other contingent Charges having been less than provided for, the Estimate being based on the Expenditure of previous Years.

Surplus: occasioned by casualties consequent upon Deaths and Removals, and from the employment of Writers, whose Wages are charged to Vote No. 8, Wages, &c., in lieu of Temporary Clerks.

Excess: this is merely the difference between the estimated and actual Expenditure.

Surplus: caused by diminished Expenditure for Travelling Charges, Advertisements, and other contingent Expenses, as compared with that for previous Years on which the Estimate was based.

Surplus: arising from the Salaries of the Lieutenants at Haslar Hospital having been decreased consequent upon their being allowed to receive Half Pay according to length of Service; from Vacancies not filled up for short periods, and from new Appointments at lower rates of Salary.

Excess: occasioned by Payments at Plymouth Hospital for Lodging Allowance granted within the Year to a Clerk, and to a Surgeon, whilst his House was under repair, not having been provided for.

Surplus: caused by the payments for carting, pumping, and keeping the Walks in repair, and for contingent Expenses at Haslar Hospital, having been less than the average of previous Years, on which the Estimate was based.

Excess: this is merely the difference between an estimated and actual Expenditure.

Excess: arising from increased Expenditure on account of Travelling Charges at Deptford.

Surplus: arising from decreased Expenditure for Lodging Money to Officers of the Royal Marines owing to the completion of new Barracks, and from the full Amount provided for Rates and Taxes on account of Fort Cumberland not having been paid pending the legal settlement of the question of liability to a local Rate.

Excess: caused by the appointment of an additional Assistant Surgeon at Fort Cumberland after the Estimate was framed, and by an allowance in lieu of Lodgings granted to an Assistant Surgeon at Plymouth Infirmary, during the time he was unprovided with Quarters.

Surplus: arising principally from fewer Warders having been required than were provided for.

EXPLANATORY STATEMENT of the Sums Expended "More or Less" than those Estimated, under each of				
HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 7.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
HER MAJESTY'S ESTABLISHMENTS ABROAD:				
Salaries, Naval Yards Abroad - - - -	21,327 2 7	20,183 4 6	- -	1,143 18 1
Rents, Taxes, and Contingencies, Naval Yards Abroad	3,365 3 -	3,274 15 6	- -	90 7 6
Salaries, Victualling Establishments Abroad - -	4,743 1 -	5,039 1 5	296 - 5	- -
Rents, Taxes, and Contingencies, Victualling Yards } Abroad - - - - - }	472 3 2	382 18 7	- -	89 4 7
Salaries, Medical Establishments Abroad - -	7,805 3 1	8,023 16 -	218 12 11	- -
Rents, Taxes, and Contingencies, Medical Establish- } ments Abroad - - - - - }	328 6 6	428 4 -	99 17 6	- -
£.	38,040 19 4	37,332 - -	614 10 10	1,323 10 2
Deficiency - - -	£.708 19 4		£.708 19 4	
VOTE No. 8.				
WAGES, &c., HER MAJESTY'S ESTA- BLISHMENTS AT HOME:				
Wages to Artificers, Naval Yards at Home - -	1,053,957 14 9	1,054,323 - -		
Abate: Labour at the several Dockyards, in } Making and Repairing Yard Machinery, pro- } vided for under Vote No. 11 - - - }	- - -	30,547 - -		
	1,053,957 14 9	1,023,776 - -	- -	*30,181 14 9
Extra Pay to Officers, Seamen, &c. at Home - -	3,390 9 5	5,000 - -	1,609 10 7	- -
General Survey in the Dockyards, Expenses of -	4,537 1 7	1,600 - -	- -	2,937 1 7
Carried forward - - - £.	1,061,885 5 9	1,030,376 - -	1,609 10 7	33,118 16 4

* Copies of Applications to Treasury and

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Excess: caused by a Foreman of Works at Malta and a Clerk and Draughtsman at Bermuda having been transferred to the Establishment at those Yards, thus causing their Salaries to be chargeable to this Vote instead of to Vote No. 11, under which they were provided for; and by the absence of Officers, &c., on account of Sickness at Jamaica and Hong Kong, having necessitated the employment of temporary Clerks at high rates of pay.

Excess: principally caused by the Payments for Lodging Allowances granted within the year to two Clerks at Malta not having been provided for; and by the Expenditure for Postage and Contingencies at Gibraltar and Bermuda having been greater than the average of preceding years.

Surplus: occasioned by it not having been found necessary to employ a temporary Clerk provided for at Jamaica; by the employment at Malta of a temporary Clerk at a lower rate of Salary, in lieu of an established Clerk; by the reduction of the Allowance paid to the Commissariat Officer at St. Helena, for the charge and issue of Naval Stores; and by the Salaries at Esquimalt having only been paid for a portion of the year, consequent upon the Establishment having been but recently formed.

Excess: arising principally from no provision having been made in the Estimates for the Rents and Contingent Expenses of the Establishment at Esquimalt, the requirements for this Service not being known when the Estimates were framed; and from the Expenditure at the Cape of Good Hope for Advertisements having been greater than the average of preceding years, upon the Expenditure of which the Estimate was based.

Surplus: caused by an Assistant Surgeon employed at Bermuda Hospital having been borne on the Books of Her Majesty's Ship "Terror," and consequently paid out of Vote No. 1, instead of this Vote, as provided for.

Surplus: arising from an Allowance in lieu of House Rent to a Surgeon at Jamaica having ceased during the year; and from the Funeral and other small Expenses at Jamaica and Hong Kong having been less than the average of previous years, upon the Expenditure of which the Estimate was based.

Excess: caused principally by the Wages paid to the Men employed in breaking up old Ships at the several Dockyards, for which no provision was made in the Estimate (having been hitherto charged against the Proceeds of the Ships sold), becoming chargeable to this Vote, under the Treasury Directions of the 28th November 1865. The Treasury sanction was given by Letters of 27th March and 10th April 1866, for 28,000 *l.* of the Excess thus caused; and by Letters of 23rd December 1865 and 15th January 1866, to an Excess of 4,000 *l.* for the Expense of making Donkey Engines.

Surplus: caused by less Expenditure having been necessary to meet the requirements of the Fleet than was provided for in the Estimates, which were based on the average of the three preceding years.

Excess: caused by the Expense of the Surveys and Survey Valuation of Stock at Woolwich and Sheerness Yards having exceeded the amount provided for those Services.

EXPLANATORY STATEMENT of the Sums Expended, " More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE,		ESTIMATE,		EXPENDITURE,			
	1865-66.		1865-66.		Less than Estimate.		More than Estimate.	
VOTE No. 8—continued.	£.	s. d.	£.	s. d.	£.	s. d.	£.	s. d.
WAGES, &c. HER MAJESTY'S ESTABLISHMENTS AT HOME—continued.								
Brought forward " - -	1,061,885	5 9	1,030,376	- -	1,609	10 7	33,118	16 4
Wages, Yard Service Afloat (Steam Tugs, Hoys, &c.)	18,230	15 11	17,533	- -	-	-	697	15 11
Hire of Teams, Naval Yards at Home - - -	10,417	- 8	10,688	- -	270	19 4	-	-
Wages to Artificers, &c., Victualling Establishments at Home - - - - -	35,109	11 7	36,239	- -	1,129	8 5	-	-
Wages, Victualling Yard Hoys, Victualling Establishments at Home - - - - -	5,118	12 8	5,339	- -	220	7 4	-	-
Annual Survey of Stores in Victualling Yards -	84	10 -	100	- -	15	10 -	-	-
Wages, Medical Establishments at Home - -	14,675	18 3	15,071	- -	395	1 9	-	-
Wages, Transport Establishments - - - -	364	5 3	348	- -	-	-	16	5 3
Wages, Marine Infirmaries - - - - -	4,593	16 -	4,808	- -	214	4 -	-	-
Wages, &c., Police Divisions, Naval, Victualling, and Medical Establishments at Home - - -	38,447	- 3	38,295	- -	-	-	152	- 3
£	1,188,926	16 4	1,158,797	- -	3,855	1 5	33,984	17 9
Deficiency - - -	£. 30,129 16 4				£. 30,129 16 4			

(A.)

Sir,
I AM directed by the Lords Commissioners of the Admiralty to acquaint you that several donkey engines are required, and can now be conveniently taken in hand by the factory at Portsmouth Dockyard. The expense of making these engines would be properly chargeable to Votes 8 and 10.
There will, however, be no certain surplus on Vote 8 ; but on that portion of Vote 11 which has been abated from Vote 8, though originally taken in it, there will be a considerable surplus, probably amounting to 6,000 £.
Under these circumstances I am desired to request you will move the Lords Commissioners of Her Majesty's Treasury to sanction the appropriation of about 4,000 £. of the surplus for the construction of these engines, and the transfer of that sum from Vote 11 to Vote 8, to which it was originally voted.

Admiralty, 18 December 1865.

The Secretary of the Treasury.

I am, &c.
(signed) C. Paget.

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Excess: the requirements of the Service having necessitated the Employment of more Yard Craft at Chatham and Devonport than were provided for.

Surplus: caused by fewer Teams being required at Pembroke than was anticipated at the time the Estimate was framed, owing to the greater use of the Railways, and the smaller quantity of Timber received.

Surplus: arising from the requirements of the Service having been met without it having been found necessary to employ the full amount of Hired Labour provided for.

Surplus: occasioned by a Hoy provided for not having been employed.

Surplus: caused by the Surveys having been completed with less Labour than was anticipated.

Surplus: caused by fewer Nurses being required at Haslar and Plymouth Hospitals than were provided for, the number of Patients having been less than usual.

Excess: this is merely the difference between an estimated and an actual Expenditure.

Surplus: occasioned by fewer Nurses having been required at Woolwich Marine Infirmary than were provided for, owing to a fewer number of Patients.

Excess: caused by the Payments for Clothing supplied in 1864-65 not having been claimed until after the commencement of the present Financial Year.

(A.)

My Lord,

Treasury Chambers, 23 December 1865.

THE Lords Commissioners of Her Majesty's Treasury have had before them your Lordship's letter of the 18th instant, requesting the authority of this Board to the appropriation of the sum of 4,000 *l.* (out of the expected surplus on Vote No. 11) to the expense of manufacturing certain donkey engines, the cost of which would be properly chargeable to Votes 8 and 10; and I am in reply to state, for the information of the Lords Commissioners of the Admiralty, that my Lords had understood that, under existing arrangements, new machinery made in the dockyards, and all repairs to machinery, were charged to Vote No. 11, and that their sanction does not appear to be necessary for any works charged on the amounts abated from Vote 8, and provided for under Vote 11, unless the entire amount of that abatement should be exceeded.

Lord C. Paget,
&c. &c.

I am, &c.
(signed) *Hugh Childers.*

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under

(B.)

Sir,

Admiralty, 1 January 1866.

WITH reference to your letter of the 23rd ultimo, I am requested by the Lords Commissioners of the Admiralty to request you will state to the Lords Commissioners of the Treasury, that the new machinery made and repaired at Her Majesty's dockyards, and forming part of the plant of the yards, is charged to Vote 11, but that donkey engines being for the use of ships, the cost of labour and materials expended thereon in the factory workshops, is chargeable to Votes 8 and 10 respectively.

The Secretary of the Treasury.

I am, &c.
(signed) *W. G. Romaine.*

(B.)

Sir,

Treasury Chambers, 15 January 1866.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter of the 1st instant, in reply to this Board's letter of the 23rd ultimo, containing information as to the vote from which the cost of donkey engines must be defrayed, and I am directed by their Lordships to signify to you their approval, in the event of Vote 8 not being sufficient to meet the portion of the expenditure for this service, which is properly chargeable to that vote, of the temporary appropriation for this purpose of any surplus on the sum abated from Vote 8, and subsequently transferred to Vote 11, not exceeding 4,000 *L.*, as proposed in your letter of the 19th ultimo.

W. G. Romaine, Esq.,
&c. &c. &c.

I am, &c.
(signed) *Hugh Childers.*

(C.)

Sir,

Admiralty, 21 March 1866.

REFERRING to my communication of the 30th September last, and your letter of the 28th November, I am directed by the Lords Commissioners of the Admiralty to request you will state to the Lords Commissioners of Her Majesty's Treasury that, under the arrangement approved by the Treasury in their letter of the 22nd October 1864, my Lords entered into contracts with Messrs. Castle & Beech, Mr. White, and Messrs. Marshall, for breaking up old ships.

By these contracts my Lords agreed to pay to the contractors a fixed sum per ton for each vessel broken up, and a further per-centage on the proceeds realized by the sale of the materials, and on the value of all materials returned into store.

Under this arrangement, as the cost of the labour expended in breaking up ships would be charged against the value of the material, no provision for it was made in the Estimates for 1865-66, under Vote No. 8, and a sum was taken under Vote No. 10, to meet the charge for the materials returned into store.

In regulating the amount of work to be done in the dockyards, no account was therefore taken of the cost of breaking up ships; and the money voted for labour in 1865-66 has been expended weekly, in strict accordance with the views on which the Estimates were framed.

The Treasury, by their letter of the 28th November, have now decided that, in the account for 1864-65, and in the Estimates for 1866-67, no charge is to be made for the repurchase of old materials returned into store, and my Lords desire to be informed whether the same course is to be adopted with the accounts for 1865-66.

It has already been stated that provision was made for the repurchase of materials under Vote No. 10, and that no provision was made for the labour in breaking up ships under Vote No. 8; the effect, therefore, of following the course pointed out in your letter of the 28th November, will be to create a surplus on Vote No. 10, and a still larger deficiency on Vote No. 8.

Under these circumstances my Lords request to be informed whether this course is to be adopted; and, if the Lords of the Treasury should so decide, I am to suggest that the sanction of the Treasury should be given to charge any excess occasioned by it to the aggregate votes for the Naval Service, on which there will be a considerable surplus.

The Secretary of the Treasury.

I am, &c.
(signed) *C. Paget.*

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

(C.)

Sir,

Treasury Chambers, 27 March 1866.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter of the 21st instant, relative to the mode of charging the repurchase of old materials returned into store from ships broken up, in the accounts of 1865-66.

I am to state, for the information of the Lords Commissioners of the Admiralty, that the rule laid down in the letter from this Department, of the 28th November last on this subject, should, in the opinion of my Lords, be applied to the accounts of 1865-66, and to all future accounts.

I am to request that my Lords may be informed of the approximate financial effect on the two Votes, Nos. 8 and 10, in order that their sanction to the excess and deficiency may be given.

The Secretary to the Admiralty,
&c. &c. &c.

I am, &c.
(signed) *Geo. A. Hamilton.*

(D.)

Sir,

Admiralty, 10 April 1866.

IN reply to your letter of the 27th ultimo, I am commanded by my Lords Commissioners of the Admiralty to acquaint you, for the information of the Lords Commissioners of Her Majesty's Treasury, that the approximate financial effect on the Votes Nos. 8 and 10 (sect. 1), by the application of the rule of defraying the cost of labour employed in breaking up old ships out of Vote No. 8, and of not charging the value of old materials returned into store from ships broken up against Vote No. 10, will be, that on Vote No. 8, as far as can be at present estimated, an excess of about 28,000 *l.* may be expected on closing the account of Naval Receipt and Expenditure for the year 1865-66, on 30th September next; and that on Vote No. 10 (sect. 1) the sum of 8,000 *l.*, provided in the Estimate for that year, to meet the anticipated payments for old materials returned into store from ships broken up, will be unexpended and available as a surplus; in addition to this, a further surplus of 23,000 *l.* may be expected on that section of Vote No. 10 at the close of the financial year 1865-66, making together the sum of 31,000 *l.* which will be available to meet the excess anticipated upon Vote No. 8 for that year, from the cause above stated.

The Secretary of the Treasury.

I am, &c.
(signed) *W. G. Romaine.*

(D.)

Sir,

Treasury Chambers, 19 April 1866.

I AM directed by the Lords Commissioners of Her Majesty's Treasury to acknowledge the receipt of your letter (E) of the 10th instant, stating, in reply to the inquiry of this Board, that the effect of defraying the cost of labour in breaking up old ships (out of Vote 8, and of not charging the value of materials returned into store against Vote No. 10), will be that an excess of 28,000 *l.* may be expected on Vote No. 8; and that on Vote No. 10 there will be a total surplus of 31,000 *l.* available to meet the excess of Vote 8, on the closing of the account for 1865-66.

The Secretary of the Admiralty.

I am, &c.
(signed) *Hugh C. E. Childers.*

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,			
			Less than Estimate.		More than Estimate.	
	£. s. d.	£. s. d.	£. s. d.		£. s. d.	
VOTE No. 9.						
WAGES TO ARTIFICERS AT HER MAJESTY'S ESTABLISHMENTS ABROAD:						
Wages, Naval Yards Abroad - - - - -	47,830 8 4	50,111 - -	2,280 11 8	-	-	-
Extra Pay to Officers, Seamen, &c. Abroad - -	9,763 10 10	8,000 - -	-	-	1,763 10 10	-
Wages, Victualling Establishments Abroad - -	8,599 15 6	9,782 - -	1,182 4 6	-	-	-
Wages, Medical Establishments Abroad - - -	4,070 16 8	4,692 - -	621 3 4	-	-	-
£.	70,264 11 4	72,585 - -	4,083 19 6	-	1,763 10 10	-
Saving - - -	£. 2,320 8 8		£. 2,320 8 8			
VOTE No. 10.						
SECTION I.—NAVAL STORES, &c.:						
Timber, Masts, Deals, &c. - - - - -	194,880 8 11	165,800 - -	-	-	29,080 8 11	-
Metals and Metal Articles - - - - -	154,332 17 7	225,000 - -	69,282 2 5	-	-	-
Machinery for Floating Factories, Coal Depôts, &c. -	1,385 - -					
Iron and Armour Plates for Iron and Iron-cased Ships, Iron Beams and Masts - - - - -	115,051 7 4	150,300 - -	35,248 12 8	-	-	-
Hemp, Canvas, &c. - - - - -	114,884 13 7	125,000 - -	10,115 6 5	-	-	-
Paint Materials, Oils, Pitch, Tar, Tallow, and other Miscellaneous Articles - - - - -	166,163 5 3	188,600 - -	22,436 14 9	-	-	-
Coals and other Fuel for Steam Vessels and Dock- yard purposes - - - - -	353,290 9 8	275,000 - -	-	-	78,290 9 8	-
Local Purchases of Stores at Coast Guard Stations -	6,638 17 4	5,000 - -	-	-	1,638 17 4	-
Carried forward - - - £.	1,106,626 19 8	1,134,700 - -	137,082 16 3	-	109,009 15 11	-

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Surplus : occasioned by fewer men having been required at Malta and Bermuda, owing to reduced exigencies of the Fleet.

Excess : occasioned by an increased amount having been paid to Artificers of the Fleet, chiefly on the North America and West Coast of Africa Stations, in order to meet the exigencies of the Service.

Surplus : caused by fewer workmen having been required at Malta than was anticipated, and by temporarily reduced Establishment charges at Esquimaux.

Surplus : occasioned by fewer nurses having been required at Malta and Hong Kong than provided for.

Excess : caused by the purchase of increased supplies of Moulmein teak timber required at the yards for use in the construction of Iron-plated and other Ships.

Surplus : occasioned partly by the credits on account of materials for making and repairing yard machinery chargeable to Vote No. 11, which principally fall on this Item, and which are abated at the end of the Vote in the aggregate ; also by the sum of 8,000 *l.*, which was provided in the Estimate to meet a charge for old copper and metal returned into Her Majesty's Dockyards from Ships broken up, not having been expended, the Lords of the Treasury having subsequently decided, by letter of 28th November 1865, that no charge should be made. The remainder of the saving arises from less payments having been made for anchors, chain cables, ironmonger's goods, lead, and wire rope, than were estimated within the year.

Surplus : caused by the failure of the manufacturers of iron plates to deliver the quantity required before the end of the financial year.

Surplus : arising from failure on the part of the contractors to supply the hemp due from them within the year.

Surplus : caused by the amount of Credits for Stores supplied to other Departments having exceeded the Estimate, and by the payments for supplies of Oil, being 5,000 *l.* less than was anticipated.

Excess : caused by the necessity for greater supplies of Coals than were estimated, and larger purchases than were estimated were made Abroad.

Excess : caused by it having been found necessary to erect and replace a larger number of Flag Stuffs than usual, by the requirements for materials for repairs of boats by divisional carpenters being unusually heavy, and by increased quantities of furniture required for cottages erected and hired for Coast Guard Men.

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
Vote No. 19—continued.				
SECTION I.—NAVAL STORES, &c.—continued.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Brought forward - - -	1,106,626 19 8	1,134,700 - -	137,082 16 3	109,009 15 11
Freight and Sundry Expenses connected with Naval Stores - - - - - }	20,349 7 11	23,000 - -	2,650 12 1	- -
Abate—	1,126,976 7 7	1,157,700 - -	139,733 8 4	109,009 15 11
Credit arising from the Net Value of Materials expended in the Dockyards on account of Experimental Purposes in the Year 1865-66 - }	791 8 4	- - -	791 8 4	- -
Abate—	1,126,184 19 3		140,524 16 8	
Materials for Making and Repairing Yard Machinery, provided for under Vote No. 11 - }	- - -	23,128 - -	- -	23,128 - -
£.	1,126,184 19 3	1,134,572 - -	140,524 16 8	132,137 15 11
Saving - - -	£. 8,387 - 9		£. 8,387 - 9	
SECTION II.—STEAM MACHINERY AND SHIPS BUILT BY CONTRACT, &c.:				
Steam Machinery for Her Majesty's Ships and Vessels	169,152 9 2	171,000 - -	1,847 10 10	- -
Ships building by Contract, &c. - - - -	79,498 14 5	130,000 - -	50,501 5 7	- -
Iron-cased Ships to be Built - - - - -	- - -	120,000 - -	120,000 - -	- -
Iron Gun Boats building by Contract - - -	47,767 8 1	56,000 - -	8,232 11 11	- -
Experimental Purposes, Sundries, and Contingencies -	10,830 12 10	20,000 - -	9,169 7 2	- -
Purchases of Dockyard Tugs and Barges - - -	30,392 - -	29,700 - -	- -	692 - -
Building and Repairing Coast Guard Tenders - -	18,440 8 3	18,000 - -	- -	440 8 3
Repairs of Ships at other than Her Majesty's Dockyards - - - - - }	44,737 11 6	20,000 - -	- -	24,737 11 6
£.	400,819 4 3	564,700 - -	189,750 15 6	25,869 19 9
Saving - - -	£. 163,880 15 9		£. 163,880 15 9	

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Surplus: this is merely the difference between an actual and an estimated Expenditure.

Credit: the Expenditure for this Service is included in the several detailed items of the Vote.

Credit: the Expenditure for this Service is included in the several detailed Items of the Vote, the principal portion of the Expenditure being under the Item of "Metals and Metal Articles" as there stated.

Surplus: occasioned by the actual Cost of the Extra Fittings of the Engines of the "Minotaur" being below that estimated, and by the Contractors for the Engines of the "Waterwitch" not having advanced the work to such a state as to entitle them to payment of the whole of the Third Instalment.

Surplus: arising from the "Northumberland" not having been completed as anticipated.

Surplus: in consequence of it being decided not to build the Ship.

Surplus: arising from the "Waterwitch" not having been completed as anticipated.

Surplus: occasioned by fewer Experiments having been tried, and those undertaken having been of a less costly nature than had been estimated for.

Excess: occasioned by the Cost of the "Camel" and "Trusty" Tugs having been in excess of the Sum estimated.

Excess: caused by the conversion of Brigs and Mortar Vessels into Watch Vessels having exceeded the amount anticipated.

Excess: caused by the Expenditure on Repairs of Ships Abroad, which could not be ascertained until the Account for the Year was made up.

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

			£.	s.	d.	
Surplus: arising on the following Items:						
New Machinery purchased	-	-	1,010	-	-	Caused by the difference between the estimated and actual cost of new Machines, and by a Planing Machine and a Break Lathe not having been furnished by the Contractors in time to pay for them in 1865-66.
Ditto - ditto, made in the Yard	-	-	100	-	-	The Work has been done in the Year 1866-67.
Repairs to Plant and Machinery	-	-	7	15	1	The Cost of Repairs not having reached the Estimated Amount.
			1,117	15	1	
Abate: Excesses arising on the following Items:						
	£.	s. d.				
New Boat Store	-	-	146	-	-	By providing new Gates instead of repairing the old Gates, and from the amount of the lowest Tender being in excess of the Estimate, due to general increase on Labour and Materials since the Estimate was framed. From the amount Estimated being less than the lowest Tender received for the work, due to general increase on Labour and Materials since the Estimate was framed. Owing to special Repairs to Caisson, Dock Gates, Capstan Frames, and Pits unprovided for, and other unforeseen Works, the excess being met out of Contingencies.
Shed for Machinery at Smithery	-	-	97	-	-	
Ordinary Repairs	-	-	149	-	-	
			392	-	-	
Reduced by the following Surpluses:						
Other Works under 500 £.	£.					
each	-	-	228	-	-	Due to the postponement of one Service.
Making Gas	-	-	52	-	-	Executed within the Estimate.
			280	-	-	
			112	-	-	
The difference remaining as Surplus	-	-	25	19	-	Arising from small variations on other items.
Excess on Works	-	-	86	1	-	
Net Surplus	-	-	1,031	14	1	
Surplus: arising on the following Items:						
New Machinery purchased	-	-	1	10	-	A fractional difference.
Repairs to Plant and Machinery	-	-	2,771	18	8	This surplus arises from the Yard Returns, on account of Materials expended for Repairs to Plant and Machinery not having been forwarded, owing to a misconception by the officers of the New Dockyard Expense Instructions; this will be adjusted in the Accounts for 1866-67.
			2,773	8	8	
Abate: Excesses arising on the following Items:						
	£.	s. d.				
Other Works under 500 £. each	-	-	236	-	-	Chiefly on unforeseen Works executed during the Year, and authorised to be met out of Contingencies.
Removing Mud from Dock No. 3, &c.	-	-	1,120	-	-	Necessary for Docking and Undocking the "Pallas" and "Favorite," to obtain the requisite depth of water, approved by Treasury Letter, 31st March 1866.
			1,356	-	-	
Reduced by the following Surplus:						
Ordinary Repairs	-	-	313	-	-	From the casualties to Buildings, &c., being less than Estimated.
			1,043	-	-	
The difference remaining as Surplus	-	-	55	14	11	Arising from small variations on other Items.
Excess on Works	-	-	987	5	1	
Net Surplus	-	-	1,786	3	7	

* Copy of Application made to Treasury, and Treasury Reply appended (see page 49.)

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

			£.	s.	d.	
Surplus arising on the following Items :						
Extension of the Yard - - - - -			7,229	-	-	By the progress on these Works having been somewhat slower than anticipated.
Enlargement of the Smithery, Boiler House, and Roofing over Quadrangle - - - }			798	-	+	Due to a saving on the Estimate, the work having been executed by Tender in competition.
New Angle Iron Smithery - - - - -			720	-	-	A larger Building has been erected than provided for, sanctioned by Treasury Letter, 18th December 1865, but owing to delay on the contractors part, the building was unfinished at the close of the year.
Foundations for Machinery - - - - -			543	-	-	Executed within the Estimate.
			9,290	-	-	
Reduced by the following Excesses :	£.	s.	d.			
New Surgery - - - - -	117	-	-	-	-	From the execution of additional Works necessary to complete this service.
Clearing Harbour of Mud - - - - -	382	-	-	-	-	Caused by additional Dredging required
Other works under 500 l. each - - - - -	1,297	-	-	-	-	To the execution of several unforeseen Works during the year, authorized to be met out of Contingencies.
Ordinary Repairs - - - - -	464	-	-	-	-	By executing continual Repairs to the Furnaces in connection with Iron Ship Building, Repairing two Official Residences on changes of occupants, cleaning out Gas Mains, &c., unprovided for, but met out of Contingencies.
Gas - - - - -	89	-	-	-	-	The difference between Estimate and actual Expenditure.
Temporary Dam at Dock No. 3 - - - - -	828	-	-	-	-	Required for temporarily lengthening the Dock to construct a Turret Ship, approved by Treasury Letter, 5th and 31st March 1866.
			3,177	-	-	
			6,113	-	-	
The difference remaining as Excess - - -			2	3	2	Arising from small variations on other Items.
Surplus on Works - - - - £.			6,110	16	10	
Reduced by the following Excesses :	£.	s.	d.			
New Machinery Purchased - - - - -	591	7	-	-	-	Caused by the difference between the Estimated and actual Cost of New Machines, and by the purchase of Chilled Rolls, and four Saw Sharpening Machines, for which no money was Voted.
Ditto - - Made in the Yard - - - - -	29	11	1	-	-	
			620	18	1	
Less—						
Surplus; Repairs to Plant and Machinery - - - - - }	14	5	11	-	-	A fractional difference.
			606	12	2	
Net Surplus - - - - £.			5,504	4	8	
Excess incurred as follows :						
Other Works under 500 l. each - - - - -			734	-	-	By the execution of several unforeseen services which have been authorized to be met out of Contingencies.
Ordinary Repairs - - - - -			157	-	-	By Repairs to Water Mains and Fire-cocks generally, which were formerly charged to Votes Nos. 8 and 10; by Repairs to Penstocks, and by increased expenditure for new Gasmeter, the excess being met out of Contingencies.
Gas - - - - -			65	-	-	The difference between estimated and actual expenditure.
Extension of Jetty, south side of Basin - - - - -			400	-	-	To remedy the delay in getting ships in and out of the basin, sanctioned by Treasury Letter of 31st March 1866.
The difference remaining as an excess - - - - -			44	-	-	Arising from small variations on other Items.
Excess on Works - - - - £.			1,400	-	-	
Add Excess arising on the following Item :						
Repairs to Plant and Machinery - - - - -			728	7	9	Caused by the constant use of the Cranes, Capstans, &c. having entailed more than the average amount of casualties, and by the transfer of the Millwrights from their own Shop, and re-transfer back, having involved new Tools, and a Refit to the Machinery.
Less—			2,128	7	9	
Surplus: New Machinery Purchased - - - - -			24	-	-	Caused by the difference between Estimated and actual Cost of New Machines.
Net Excess - - - - £.			2,104	7	9	

* Copies of Applications made to the Treasury, and Treasury Replies appended (*see* pages 46 and 49.)

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 11—continued.				
NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS IN THE YARDS, &c.—cont ^d .	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Brought forward - - - £.	124,522 5 5	130,740 - -	8,322 2 4	2,104 7 9
New Works, &c., Portsmouth - - - -	99,366 5 7	84,755 - -	- -	*14,611 5 7
Carried forward - - - £.	223,888 11 -	215,495 - -	8,322 2 4	16,715 13 4

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

	£.	s.	d.	
*Excess: arising on the following Items:				
Extension of the Yard - - - - -	13,872	-	-	Greater progress made with the Work than contemplated when the Estimate was prepared, sanctioned by Treasury Letter 24th March 1866.*
North Inlet Dock, No. 11 - - - - -	353	-	-	Owing to additional Works, Bollards, Capstans, &c., sanctioned by Treasury Letter, 17th March 1866.
Lowering Floor of Dock No. 7 - - - - -	7,407	-	-	By completing the Dock within the year, urgently required for the service, sanctioned by Treasury Letters, 17th March 1865, and 24th March 1866.
Dredging in Harbour - - - - -	3,126	-	-	For additional Dredging required, sanctioned by Treasury Letters, 14th November 1865 and 24th March 1866.
*Ordinary Repairs - - - - -	1,704	-	-	Arising from extensive Repairs to Ship Basin, Caisson, restoring damages by gale, repairs to Furnaces, and to Admiral Superintendent's Residence on change of occupant, the Excess being met out of Contingencies sanctioned by Treasury Letter, 31st March 1866, to the extent of 1,460 l.
*Dredging Medina River, Isle of Wight - - -	1,854	-	-	Required to keep open the Channel for Her Majesty's Yacht, sanctioned by Treasury Letters, 2nd March 1865, and 24 March 1866.
Glass roof between Smithery and Engine House	663	-	-	Provided in Estimates 1864-65, but completed and paid this Year.
	£.	28,979	-	-
Reduced by the following Surpluses:				
Engine House and Pump Well for } Dock No. 11 - - - - -	315	-	-	Less Work done than contemplated.
Iron Shed for Smitheries - - - - -	362	-	-	From the retention of 300 l. until the completion of the Works.
Examination-room, Royal Naval College - - - - -	2,000	-	-	Postponed.
Overflow drain from 80-horse power } Engine House - - - - -	930	-	-	Deferred.
Removing Decks of Caissons Nos. 7 } and 8 - - - - -	292	-	-	By the lowest Tender being less than Estimate.
Foundations for Machinery - - - - -	506	-	-	Less Work executed than expected.
Ordinary Repairs, Gun-boat Slips - - - - -	170	-	-	Executed within the Estimate.
Gas - - - - -	238	-	-	Difference between Estimated and Actual Expenditure.
	£.	4,813	-	-
	£.	24,166	-	-
The difference remaining as Excess - - - - -	25	4	9	Arising from small Variations on several Items.
Excess on Works - - - - -	£.	24,191	4	9
Reduced by the following Surpluses:				
New Machinery purchased - - - - -	£.	s.	d.	
	706	9	6	Caused by the difference between the Estimated and Actual Cost of new Machines, and by the Balance on Engines and Pumps (for which Money was voted) not having been paid in 1865-66.
Repairs to Plant and Machinery - - - - -	8,873	9	8	Caused by the Pressure on Repairs of Works afloat occupying the men authorised to be borne in the Factory, and by the Cost of a new pair of Sheers made at Woolwich, for which 2,400 l. was inserted in the Estimates; also from the Yard Returns on account of Materials expended for Repairs to Plant and Machinery not having been forwarded, owing to a misconception, by the officers, of the new Dockyard expense instructions; this will be adjusted in the accounts for 1866-67.
		9,579	19	2
Net Excess - - - - -	£.	14,611	5	7

* Copies of Applications made to the Treasury, and Treasury Replies appended (see pages 46, 47, 48, and 49.)

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated under

HEADS OF SERVICE.	EXPENDITURE, 1865-66.			ESTIMATE, 1865-66.			EXPENDITURE,					
							Less than Estimate.			More than Estimate.		
VOTE No. 11—continued.												
NEW WORKS, BUILDINGS, MACHINERY, AND REPAIRS IN THE YARDS, &c.—cont ^d .	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.
Brought forward - - -	223,888	11	-	215,495	-	-	8,322	2	4	16,715	13	4
New Works, &c., Devonport - - - - -	17,291	3	-	19,120	-	-	1,828	17	-	-	-	-

NAVY SERVICES, FOR THE YEAR ENDED 31 MARCH 1866.

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued*.

CAUSES OF VARIATION.

		£.	s.	d.	
Surplus: arising on the following Items:					
New Machinery purchased	- - - -	941	1	6	Caused by the difference between the estimated and Actual Cost of New Machines, and by a 5-ton Crane not having been purchased.
Repairs to Plant and Machinery	- - - -	2,088	12	11	Caused by the Repairs having been less than was anticipated.
		3,029	14	5	
Abate: Excesses arising on the following Items:					
Re-covering Slip Roof at Outer Mast Pond	- - - -	91	-	-	From the lowest Tender, being in Excess of the Estimate.
Increased Office accommodation at Pay Office	- - - -	186	-	-	By constructing additional Water-closets and removing the old, thereby increasing the accommodation.
Dredging Mud in front of Jetties	- - - -	131	-	-	Due to Dredging at entrance to Basin, which was necessary, but unprovided for.
*New Jetty, north side of Dock, No. 2	- - - -	1,331	-	-	This service was Voted in Estimates 1864-65, but not completed; sanctioned by Treasury Letter, 31st March 1866.
Renewal of Gas Meters and Mains	- - - -	139	-	-	Provided under Alterations and Reconstructions in 1864-65, but not completed in that Year.
*Repairing South Sawmills	- - - -	787	-	-	Restoring Buildings damaged by Fire; sanctioned by Treasury Letter, 9th March 1865.
		£. 2,665	-	-	
Reduced by the following Surpluses:					
Foundations for Machinery	661 - - -	-	-	-	Less Work executed than anticipated.
Other Works under 500 <i>l</i> .	each - - - -	577	-	-	Saving on two Items, the Tenders being less than Estimated, and by deferring another Item provided under this head.
Ordinary Repairs	- - 215 - -	-	-	-	The casualties being within the Estimate.
		1,453	-	-	
		£. 1,212	-	-	
The difference remaining as Surplus	- - - -	11	2	7	Arising from small Variations on several Items.
Excess on Works	- - - -	1,200	17	5	
		Net Surplus	-	-	£. 1,828 17 -

* Copies of Applications made to Treasury, and Treasury Reply appended. (See page 49).

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under

[illegible]

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

		£.	s.	d.	
Excess: incurred on the following Items:					
*Constructing South Basin, and two Docks, &c.		8,937	-	-	Due to greater progress on this work; sanctioned by Treasury Letter, 24th March 1866.
Caisson at entrance of Entrance Lock	- -	335	-	-	By an additional Ballast Tank on the Upper Deck, and other necessary Works.
Paving Roads and Tramroads	- - -	127	-	-	From forming Tramways of old Iron Ballast in the Thoroughfares most required.
Other Works under 500 l. each	- - -	316	-	-	Chiefly on unforeseen Works authorised to be met out of Contingencies.
Capstans, complete, for North Basin	- -	322	-	-	Provided in Estimates 1864-65, but executed this year.
	£.	10,037	-	-	
Reduced by the following surpluses:					
Building Foundations for Additional Pumping Power	- - - } 7,863	-	-	-	It was found necessary to revise the original plans, and the execution of this service has been postponed until next year.
Foundations for Machinery	- 295	-	-	-	Less amount expended than estimated.
Gas	- - - - 84	-	-	-	Difference in Estimate and actual Expenditure.
	£.	1,795	-	-	
The difference remaining as Excess	- - -	22	10	5	Arising from small variations on other services.
Excess on Works	- - - £.	1,817	10	5	
Add, Excesses: incurred on the following Items:					
New Machinery purchased	- 19	-	-	-	A fractional difference.
Repairs to Plant and Machinery	2,967 - 6	-	-	-	Caused by the Repairs having been heavier than was anticipated.
	£. 2,986	-	-	6	
Less, Surplus:					
New Machinery made in the Yard	1,409 17 2	-	-	-	From the Expenditure having been less than was anticipated.
		1,576	3	4	
Net Excess	- - - £.	3,393	13	9	

Excess: caused by the Repairs through Casualties having been greater than estimated.

* Copy of Application made to the Treasury, and Treasury Reply appended. (See page 47).

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under

[illegible]

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Excess : arising on the following Items :			£.	s.	d.	
Stern Berthings, Stern Stages, Dams and Bridges to Slips	-	-	137	-	-	From restoring the Dam and Bridge, at Slip No. 1, which was destroyed by high tide.
* Foundations for Machinery	-	-	1,308	-	-	Necessary for constructing the "Penelope," and ships of a similar class; sanctioned by Treasury Letter, 31st March 1866.*
Other works, under 500 l. each	-	-	122	-	-	Chiefly by executing unforeseen services authorised to be met out of Contingencies.
Ordinary repairs	-	-	347	-	-	By extensive repairs required to the smithery, furnaces &c., and the casualties to the buildings generally being greater than estimated, the excess being met out of Contingencies.
* Traveller way on each side of Slip No. 2	-	-	1,129	-	-	Required for hastening the construction of the "Penelope," sanctioned by Treasury Letter, 31st March 1866.*
* Works at Slip No. 2, in connection with constructing "Penelope"	-	-	1,518	-	-	Works urgently required and unprovided for, arising out of the construction of the "Penelope," sanctioned by Treasury Letter, 31st March 1866.*
		£.	4,561	-	-	
Reduced by the following Surplus :						
Making Gas	-	-	385	-	-	Saving on Estimate, and payment of arrears from War Department for gas supplied.
For difference remaining as Surplus	-	-	2	16	6	Variations on several items.
			387	16	6	
Excess on Works	-	-	4,173	3	6	
Excess: Repairs to Plant and Machinery	-	-	3,395	5	8	
Reduced by the following Surpluses :						
New Machinery purchased	£.	s.	-	-	-	Caused by adapting gun boat engines to work capstans at Hobb's Point, including the value of the engines, 3,330 l.
New Machinery made in the Yard	129	-	-	-	-	Caused by the difference between the estimated and actual cost of new machines.
	723	13	4	-	-	Ditto - - - and by the sum of 600 l. having been appropriated to the Director of Works Department, for angle iron furnaces.
			852	13	4	
			2,542	12	4	
Net Excess	-	-	£.	6,715	15	10
Surplus arising on the following Items :						
Haulbowline—For construction of a Dock	-	-	618	-	-	Owing to the necessary preliminary arrangements retarding progress of work.
Reduced by excess on—						
Hobb's Point—Shed over Engine	-	-	240	-	-	Necessary to protect machinery for working sheers.
		£.	378	-	-	
For difference remaining as Surplus	-	-	21	14	8	Small variations on other Items.
Surplus on Work	-	-	£.	399	14	8

* Copy of Application to Treasury, and Treasury Reply appended. (See page 49).

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

	£.	s.	d.	
Surplus: arising on the following Items:				
Royal Victoria Yard: Foundations for Machinery - - - - -	122	-	-	The difference between estimated and actual Expenditure.
Royal Clarence Yard: Extension of Sewer Pipe - - - - -	821	-	-	Deferred, the present discharge-pipe having been carried out into deeper water.
	943	-	-	
Reduced by an Excess:				
Royal Clarence Yard: Foundations for Machinery - - - - -	166	-	-	The difference between estimated and actual Expenditure.
	777	-	-	
The difference remaining as a Surplus - - -	11	17	7	Small variations on several Items.
Surplus on Works - - - £.	788	17	7	
Add—Surpluses arising on the following Items:				
Royal Victoria Yard: New Machinery made in the Yard - - - - -	100	-	-	Arising from the Yard Returns on account of Materials expended not having been forwarded, owing to a misconception by the Officers of the new Dockyard Expense Instructions; this will be adjusted in the Accounts for 1866-67.
Royal Victoria Yard: Repairs to Plant and Machinery - - - - -	573	7	10	The extent of these Repairs not having reached the anticipated amount.
Royal Clarence Yard: Repairs to Plant and Machinery - - - - -	837	6	6	Arising from the Yard Returns on account of Materials expended for Repairs to Plant and Machinery not having been forwarded, owing to a misconception by the Officers of the new Dockyard Expense Instructions; this will be adjusted in the Accounts for 1866-67.
Royal William Yard: Repairs to Plant and Machinery - - - - -	791	8	7	The Estimate was made to cover any unforeseen contingency that might happen with the old Machinery, the Boilers being about 30 years old.
Reduced by an Excess:	3,091	-	6	
Royal Victoria Yard: New Machinery purchased - - - - -	317	10	-	Caused by the difference between the estimated and actual Cost of new Machines, and by the purchase of a Stave Jointing Machine, for which no money was voted.
Net Surplus - - - £.	2,773	10	6	
Excess on the following Items:				
Plymouth: Other Works under 500 l. each -	148	-	-	From unforeseen Works authorised to be met out of Contingencies.
Yarmouth: Other Works under 500 l. each -	348	-	-	Due to executing unprovided Services authorised to be met out of Contingencies.
Yarmouth: Ordinary Repairs - - -	195	-	-	By the value of old Stores returned to Contractor being charged to the Work, and by additional Repairs to Buildings generally, not provided for, but met out of Contingencies.
	691	-	-	
Reduced by Surplus on:				
Plymouth: Sculleries and Water-closets -	141	-	-	By a modification of the original plan this Saving was effected.
	550	-	-	
The difference remaining as Surplus - - -	48	4	3	Arises from variations on several Items.
Net Excess - - - £.	501	15	9	

EXPLANATORY STATEMENT of the Sums Expended, " More or Less " than those Estimated, under

[illegible]

* Copy of Application made to the Treasury.

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

			£.	s.	d.	
Surplus arising on the following Items:						
Woolwich: Other Works under 500 l. each	-	-	228	-	-	Chiefly from one item being executed much within the Estimate.
Plymouth: Constructing additional Barrack Accommodation	-	-	6,414	-	-	{ Owing to a strike amongst the workmen for over four months of the year.
Mill Bay: Gas	-	-	61	-	-	The difference between Estimate and actual Expenditure.
Deal: General Scheme of Drainage	-	-	1,266	-	-	Not completed, owing to delay in carrying out the necessary preliminary arrangements.
			7,969	-	-	
Reduced by the following Excesses:			£.			
Woolwich: Building to contain Lecture Room, &c.	-	-	69	-	-	{ Arising from the execution of additional fittings in the building.
Chatham: Purchase of Land, &c.	-	134	-	-	-	Not completed.
Chatham: Gas	-	-	78	-	-	The difference between Estimate and actual Expenditure.
Forton: Works under 500 l. each	-	196	-	-	-	By increasing the size of the School-room beyond original intentions, the Excess being met out of Contingencies.
* Eastney: Constructing Officers' Quarters, &c.	-	-	4,752	-	-	{ Greater progress made than anticipated; sanctioned by Treasury Letter, 24th March 1866. *
Eastney: Ordinary Repairs	-	266	-	-	-	From Repairs to outlet of Main Drain, Fences, and Casemates, and making good Damages by Gale, not provided for, but met out of Contingencies.
Deal: Ordinary Repairs	-	67	-	-	-	Owing to ventilating men's rooms, and the execution of Services authorized to be met out of Contingencies.
			5,562	-	-	
			2,407	-	-	
The difference remaining as Excess	-	-	1	19	9	Arising from small variations on other Items.
Net Surplus	-	-	£.	2,405	-	3
Surpluses arising on the following Items:						
Chatham: Works under 500 l. each	-	-	63	-	-	From some of the Items being executed within the Estimate.
Chatham: Ordinary Repairs	-	-	105	-	-	The casual Repairs being less than Estimate.
			168	-	-	
Reduced by Excess on:						
Woolwich: Works under 500 l. each	-	-	146	-	-	By executing additional Paving to the front entrance, the Excess being met out of Contingencies.
			22	-	-	
The difference remaining as Surplus	-	-	43	1	1	Arising from small variations on other Items.
Net Surplus	-	-	£.	65	1	1
Surplus on the following Item—						
Purchase and Erection of Buildings	-	-	2,252	14	3	Failure of Contractors during the execution of the Works.
Less—						
Excess on Repairs of Buildings	-	-	6	5	6	The difference between estimated and actual Expenditure.
Net Surplus	-	-	£.	2,246	8	9

and Treasury Reply appended (*see page 47*).

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

	£.	s.	d.	
*Excess on the following Item :				
General Repairs, &c. - - - - -	2,177	4	7	Arising from the numerous changes in the Offices and the additional accommodation necessary, the excess being met out of Contingencies ; sanctioned by Treasury Letter, 1st June, to the extent of 1,800 <i>l.</i> *
Reduced by a Surplus on Gas - - - - -	70	6	2	The difference between estimated and actual Expenditure.
Net Excess - - - - £.	2,106	18	5	
Excess arising on the following Items :				
*Malta: Dredging and Extending the Great Harbour - - - - -	22,041	-	-	{ Required to meet the Payments for current Work done also the Payment of Award for disputed claims in constructing Wharf Walls, &c.; sanctioned by Treasury Letter, 31st March 1866, to the extent of 21,000 <i>l.</i> *
*Malta: Purchase of Property - - - - -	27,325	-	-	To meet the claims of the Maltese Government for property purchased for the Imperial Government ; sanctioned by Treasury Letter, 24th March 1866. *
Malta: Constructing a Dock - - - - -	1,229	-	-	Due to the vigorous prosecution of the work.
Malta: Ordinary Repairs - - - - -	288	-	-	By the execution of necessary services, paving in yard, &c., unprovided in the Estimates, but met out of Contingencies.
Bermuda: Ordinary Repairs - - - - -	213	-	-	From making good damages done by gale, &c., authorized to be met out of Contingencies.
Jamaica: Foundations for Machinery - - - - -	183	-	-	The machinery provided in Estimates 1864-65 having been received and fixed this year.
Jamaica: Ordinary Repairs - - - - -	104	-	-	By the casual repairs to the Buildings generally having been greater than estimated, the excess being met out of Contingencies.
Jamaica: Enlargement and Completion of Smithery - - - - -	140	-	-	From completing Works provided in Estimates 1864-65.
Vancouver's Island: Additional Buildings at Esquimalt - - - - -	163	-	-	{ Owing to the execution of additional Works required beyond the Estimate.
Cape of Good Hope: To complete Sea Wall, &c. - - - - -	463	-	-	Greater progress made than anticipated.
Cape of Good Hope: Other Works under 500 <i>l.</i> each - - - - -	239	-	-	{ By the execution of Work unprovided, but authorized to be met out of Contingencies.
Cape of Good Hope: Ordinary Repairs - - - - -	201	-	-	Due to executing urgent repairs necessary to preserve the Buildings, unprovided for, but met out of Contingencies.
*Hong Kong: Extension of Stone Jetty - - - - -	2,396	-	-	{ Necessary, owing to the Silting up of the deposit in front of yard; sanctioned by Treasury Letter of 4th April 1866, at an estimated cost of 1,305 <i>l.</i> This work was greatly understated by the officers.
Hong Kong: Building for Vertical Sawing Machine - - - - -	107	-	-	Completing the work, provided in Estimates 1863-64.
Hong Kong: Forming Ground and two Jetties at Kowloon - - - - -	423	-	-	{ Payment to Contractor for Work provided in Estimates 1863-64.
Carried forward - - - - £.	55,515	-	-	

Treasury Replies appended (*see* pages 47, 49, 51.)

EXPLANATORY STATEMENT of the Sums Expended, " More or Less " than those Estimated, under

[illegible]

* Copies of applications made to Treasury,

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

	£.	s.	d.	
Brought forward—Excess - - -	55,515	-	-	
Reduced by Surplus on the following Items: £.				
Gibraltar: Extension of the Mole - 117	-	-	-	Not completed.
Gibraltar: Gas - - - - 74	-	-	-	The difference between Estimate and actual Expenditure.
Malta: Naval Prison - - - - 275	-	-	-	Slower progress than anticipated; not completed.
Malta: Gas - - - - 107	-	-	-	Difference between Expenditure and Estimate.
Halifax: Removing Coal Stores - 400	-	-	-	Postponed, and re-voted in 1866-67.
Halifax: Ordinary Repairs - - 680	-	-	-	Arising from Work provided in Estimate, but not executed this year.
Jamaica: Other Works, under 500 l. each 71	-	-	-	Executed within the Estimate.
Ascension: Foundations for Machinery - 245	-	-	-	Deferred by the non-arrival of the Machines.
Ascension: Other Works, under 500 l. each 552	-	-	-	{ By some of the Services having been deferred for want of labour, these have been re-voted in 1866-67.
Trincomalee: Repairs to Admiralty House 144	-	-	-	Not completed.
Trincomalee: Other Works, under 500 l. each 174	-	-	-	- Ditto.
Singapore: Coal Store and Jetty - 80	-	-	-	- Ditto.
Hong Kong: New Offices and Quarters for Artificers - - - - 347	-	-	-	Arising from delay in proceeding by the Contractors.
	3,266	-	-	
	52,249	-	-	
The difference remaining as Surplus - - -	69	8	10	Arising from small variations on several items.
Excess on Works - - - £.	52,179	11	2	
Add, Excess on the following Items:				
Gibraltar: Repairs to Plant and Machinery - 73	7	6		Caused by the Repairs having been more extensive than anticipated.
Malta - - ditto - - - ditto - - - 265	4	5		- Ditto - - - ditto - - - ditto.
Halifax: New Machinery purchased - - 228	-	-		Caused by the difference between the estimated and actual Cost of new Machines, and by purchasing a Portable Steam Engine, for which no money was voted.
	52,746	3	1	
Reduced by the following Surpluses:				
Bermuda: New Machinery purchased - 170	-	-		{ Caused by the difference between the estimated and actual Cost of new Machines, and by a small Furnace and Cupola, for which money was voted, not having been purchased.
Ascension: New Machinery made in the Yard - - - - - 70	-	-		{ Caused by the Work for which this Amount was voted not having been performed in the year.
	240	-	-	
	52,506	3	1	
The Difference remaining as a Surplus - - -	3	14	3	Arising from small variations on other items.
Net Excess - - - £.	52,502	8	10	
Surplus arising on the following Items:				
Malta: Ordinary Repairs - - - - 65	-	-		{ The difference between estimated and actual Expenditure.
Malta: Gas - - - - - 70	-	-		
	135	-	-	
The difference remaining as a Surplus - - -	49	12	11	Arising from small variations on other items.
Surplus on Works - - - £.	184	12	11	
Surplus arising on the following Item:				
Lisbon: Ordinary Repairs - - - - 108	-	-		Caused by the Repairs being less than estimated.
Less: the difference remaining as an Excess - 7	8	3		Arising from small variations on other items.
Net Surplus - - - £.	100	11	9	

Surplus: This Vote is taken to meet the Expenditure for Works of an unforeseen character, whether chargeable to this head in the Admiralty Ledger, or to other items under which, if the Works had been foreseen, they would have been provided for. The Expenditure on account of the latter Service, defrayed out of the money taken under this item, is 10,125 l. 12 s. 5 d., consequently there is an Excess of 465 l. - s. 8 d.

The sanction of the Treasury to Expenditure amounting to 3,260 l. under this item, was given by letters dated 31st March and 1st June 1866.

EXPLANATORY STATEMENT of Sums Expended, "More or Less" than those Estimated, under

(J.)

Sir,

Admiralty, 26 February 1866.

I AM commanded by my Lords Commissioners of the Admiralty to acquaint you, for the information of the Lords Commissioners of Her Majesty's Treasury, that it has been found necessary to make certain alterations to the caisson of Dock No. 3, at Chatham, so that it may be appropriated as a dam in connection with the building of a turret-ship at that dockyard; and, as the greater portion of the work must be completed before the close of the present financial year, I am to request that you will move their Lordships to consent to the cost of 1,233 *l.* being charged as an excess on Vote 11, New Works, and met out of the surplus on the Aggregate Vote for Naval Services in 1865-66, as there will be no surplus on Vote 11.

The Secretary to the Treasury.

I am, &c.
(signed) *W. G. Romaine.*

(J.)

Sir,

Treasury Chambers, 5 March 1866.

WITH reference to your letter of the 26th instant, in which you request that the excess of expenditure over Vote 11, which will be caused by certain necessary alterations to the caisson of Dock No. 3, at Chatham, may be charged against the aggregate savings on Naval Votes for 1865-66, I am directed by the Lords Commissioners of Her Majesty's Treasury to convey to you, for the information of the Lords Commissioners of the Admiralty, their approval of the temporary appropriation of so much as will be requisite for this service, not exceeding 1,233 *l.* out of any surplus that may arise on the Aggregate Votes.

W. G. Romaine, Esq.,
&c. &c. &c.I am, &c.
(signed) *Hugh C. E. Childers.*

(N.)

Sir,

Admiralty, 8 March 1866.

I AM commanded by my Lords Commissioners of the Admiralty to acquaint you that the final accounts for constructing Dock No. 11, at Portsmouth, executed by Messrs. Smith & Co., have now been rendered, and the balance due to the Contractors (803 *l.* 14 *s.* 1 *d.*) has now to be paid.

The total estimate for this work, commenced in 1861, was 81,654 *l.*, and the actual cost 82,980 *l.*; the excess, however, on this year's Vote, is only 424 *l.*, the remaining excess 902 *l.*, having been included in the expenditure of former years.

The cause of this excess is owing to additional bollards and capstans provided for the dock; to the difficulties and extra expense contingent on lowering the invert and providing additional stops; to fitting the caisson after deepening it; and, lastly, to the extra exertions and expense in getting ready the dock to receive the "Minotaur" in May last.

I am therefore to request that you will move the Lords of Her Majesty's Treasury to concur with my Lords in authorising this excess, in order that the balance due to the Contractors may be paid before the 31st instant.

The Secretary of the Treasury.

I am, &c.
(signed) *W. G. Romaine.*

(N.)

Sir,

Treasury Chambers, 17 March 1866.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter of the 8th instant, stating that the final account of the expenses attending the construction of Dock No. 11, at Portsmouth, has been rendered; that the estimated cost was 81,654 *l.*, and the actual cost 82,980 *l.*, showing an excess of 1,326 *l.*, and requesting authority for this excess, in order that the final payment may be made to the Contractor.

I am to convey to you, for the information of the Lords Commissioners of the Admiralty, the approval of my Lords of the excess in question being defrayed out of any surplus which may arise in Vote 11.

The Secretary to the Admiralty.
&c. &c. &c.I am, &c.
(signed) *Hugh C. E. Childers.*

(F.)

Sir,

Admiralty, W. C., 27 February 1865.

I AM commanded by my Lords Commissioners of the Admiralty to request you will state to the Lords Commissioners of Her Majesty's Treasury, that on a representation having been made to their Lordships of the growing obstructions to the free navigation of the Medina River, a survey was ordered to be made; and it appears that owing to the silting up of the bar and other shoals, a certain amount of dredging is required to be performed in order to make a navigable channel at all times of tide for the access of Her Majesty's yacht "Alberta" to the landing-quay at Cowes. The cost of this work will be 1,954 *l.* 1 *s.* 3 *d.*, and my Lords request the concurrence of the Lords of the Treasury previously to accepting the tender, and to the expense being charged on the aggregate saving on Vote 11 of Naval Estimates.

The Secretary of the Treasury.

I am, &c.
(signed) *G. W. Romaine.*

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

(F.)

Sir,

Treasury Chambers, 2 March 1866.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter of the 27th ultimo, relative to the necessity for dredging a portion of the Medina River, in order to keep a channel open at all times of the tide for the access of Her Majesty's yacht "Alberta," to the landing-quay at Cowes, and I am directed by their Lordships to signify to you their approval of the proposal of the Lords Commissioners of the Admiralty to expend a sum of 1,954*l.* 1*s.* 3*d.* on this service, and to charge the same on the aggregate saving on Vote No. 11, of the Navy Estimates.

The Secretary of the Admiralty.

I am, &c.
(signed) *F. Peel.*

(G.)

Sir,

Admiralty, 19 March 1866.

I AM directed by the Lords Commissioners of the Admiralty to transmit to you, for the information of the Lords of the Treasury the accompanying statement, showing the probable excess or surplus upon each of the Naval Votes for the year 1865-6, the result giving an estimated net surplus of 192,000 *l.*

My Lords also desire me to transmit to you the copy of a submission from the Director of Works, respecting the expenditure upon the works under his charge, with the view of bringing up the payments as close as possible to the end of the current month, by which it appears that on Vote No. 11, an excess of about 71,000 *l.* would be incurred exclusive of machinery.

As the additional claims set forth by the Director of Works will, if paid before the 31st instant, have the effect of greatly relieving the Vote for next year, my Lords request the concurrence of the Treasury to the appropriation of about 71,000*l.*, out of the aggregate surplus on the Navy Votes, to meet the anticipated excess on Vote No. 11.

The Secretary of the Treasury.

I am, &c.
(signed) *C. Paget.*

(G.)

My Lord,

Treasury Chambers, 24 March 1866.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter of the 19th instant, requesting their approval of the appropriation of about 71,000 *l.* out of the aggregate surplus on the other Navy Votes for 1865-66, to meet an anticipated excess on Vote No. 11, and I am directed by their Lordships to acquaint you, for the information of the Lords Commissioners of the Admiralty, that my Lords will not withhold their consent to so much of the aggregate surplus on Navy Votes for 1865-66, as may be required, being applied to meet the excess of expenditure on items, the total estimate of which has by implication or otherwise been approved by Parliament, and is not now increased; or for those services which though not provided for in the Estimates have, on the special recommendation of the Board of Admiralty, been allowed by this Board to be charged to the aggregate of Vote 11.

My Lords cannot, however, consent to a similar appropriation with regard to charges for New Works which have not been authorised by this Board, or for excesses (as for the extension of the Harbour at Malta), which cause an addition to the total estimate approved by Parliament.

My Lords approve, under these circumstances, of the following sums being charged to the Votes for 1865-66:

						£.	s.	d.
1.	Portsmouth	-	Extension of Yard	-	-	15,220	-	-
	Ditto	-	Barracks	-	-	5,000	-	-
	Keyham	-	Extension of N. Basin	-	-	7,000	-	-
	Malta	-	Purchase of Land	-	-	27,330	-	-
2.	Chatham	-	Smithery	-	-	1,020	-	-
	Portsmouth	-	No. 7, Dock	-	-	7,210	-	-
	Ditto	-	Dredging	-	-	3,550	-	-
	Medina	-	Dredging	-	-	1,830	-	-
					£.	68,160	-	-
	After deducting the surplus on Vote No. 11, as stated in the							
	Memorandum from the Director of Works; viz.					30,850	-	-
					£.	37,310	-	-

The sum of 37,310*l.* will, therefore, have to be appropriated out of the aggregate surplus on the Navy Votes for 1865-66.

Right Hon. Lord C. Paget, M.P.,
&c. &c. &c.I am, &c.
(signed) *Geo. A. Hamilton.*

EXPLANATORY STATEMENT of Sums Expended, "More or Less" than those Estimated, under

(H.)

Sir,

Admiralty, 26 October 1865.

I AM commanded by the Lords Commissioners of the Admiralty to request you will inform the Lords Commissioners of Her Majesty's Treasury, that in the Estimates for this year, a sum of 2,000 *l.* is provided for the annual service of dredging the Harbour at Portsmouth; this Vote is for the expense of barging away the material raised by the Government dredgers, all the expenses of maintaining and working the dredgers, including the pay of the crew being charged to other Votes.

My Lords decided in May last, that the vessels should be placed under the control of the Director of Works, and that all the expenses should be charged to the item of Vote No. 11, in the execution of which they were employed.

Owing to this arrangement, and to executing the work with increased dispatch, the above-mentioned sum of 2,000 *l.* has been entirely exhausted; and if the dredging is continued during the remainder of the financial year, the probable excess upon this service is estimated to reach 3,770 *l.*

As several of Her Majesty's ships of the heavier class have taken the ground at low water, the necessity for carrying out the dredging appears to my Lords to be absolutely necessary; and they therefore request the concurrence of the Lords of the Treasury for the additional expenditure anticipated.

My Lords desire me to add, that 1,250 *l.* of this expenditure being for the pay of the crew, and for stores and repairs of the dredgers during the year, it may be expected that such sum should be saved from other Votes, and that no excess on the aggregate Vote is anticipated by this additional charge.

The Secretary of the Treasury.

I am, &c.
(signed) *C. Paget.*

(H.)

My Lord,

Treasury Chambers, 14 November 1865.

THE Lords Commissioners of Her Majesty's Treasury have had before them your Lordship's letter of the 26th October, stating that in consequence of the expense of maintaining the dredgers and their crews, which are employed in Portsmouth Harbour, having been transferred to Vote No. 11, there will be an (estimated) excess over the 2,000 *l.* voted, of 3,770 *l.* at the end of the present financial year, if the dredging, as is absolutely necessary, be continued; but that 1,250 *l.* is expected to be saved from the Votes, from which the above-named items were transferred; and I am directed to state for the information of the Lords Commissioners of the Admiralty, that if, as my Lords apprehend, there will be a saving by this arrangement on Votes 1, 8, and 10, to the extent of 1,250 *l.*, my Lords approve of the excess of expenditure which will become chargeable on Vote No. 11 on this, and on account of the further dredging that has been found necessary, being temporarily defrayed out of the savings on that Vote.

Right Hon. Lord C. Paget, M.P.,
&c. &c. &c.I am, &c.
(signed) *Hugh C. E. Childers.*

(I.)

Sir,

Admiralty, 10 March 1865.

IN the Estimates for 1865-66, provision is made for an expenditure of 10,000 *l.* in lowering the floor of No. 7 Dock, at Portsmouth, part of a total estimate of 20,000 *l.* It had been the intention of my Lords, &c., to use the dock for the new armoured ship "Minotaur," during the approaching spring and summer, and to undertake the work late in the year; but since the preparation of the Estimates, my Lords have considered it better to take the work in hand at once, placing the "Minotaur" in Dock No. 11, now approaching completion.

By such an arrangement, the total estimate for the work will be reduced from 20,000 *l.* to 17,000 *l.*; but as the whole amount would probably come in course of payment during the ensuing financial year, my Lords are unwilling to depart from the arrangement shown in the Estimates, without the concurrence of the Lords Commissioners of Her Majesty's Treasury, which they request accordingly.

My Lords direct me to add, that care will be taken not to exceed the aggregate Vote No. 11.

The Secretary to the Treasury.

I am, &c.
(signed) *C. Paget.*

(I.)

My Lord,

Treasury, 17 March 1865.

WITH reference to your letter of the 10th instant, proposing to proceed immediately with the lowering of the floor of No. 7 Dock, at Portsmouth, which course will entail the payment during the year 1865-66, of a sum of 17,000 *l.* instead of 10,000 *l.*, the sum provided in the Estimates to be expended on the dock during 1865-66, I am directed by the

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

the Lords Commissioners of Her Majesty's Treasury to signify to you their Lordships approval of the proposal of the Lords Commissioners of the Admiralty to place the work in hand at once, and to pay the total cost of it, 17,000 *l.* during the year 1865-66, on the understanding that the total charge on the Vote will be kept within the Estimate.

The Secretary of the Admiralty.

I am, &c.
(signed) *F. Peel.*

(E.)

Sir,

Admiralty, 28 February 1865.

I AM commanded by my Lords Commissioners of the Admiralty, to acquaint you for the information of the Lords Commissioners of Her Majesty's Treasury, that on the 24th November last a fire took place in Devonport Dockyard, by which damage to the South Saw Mills was caused, requiring between 800 *l.* and 900 *l.* to make good, and I am to request that the Lords of the Treasury will give their concurrence to an expenditure to that amount, which my Lords propose to charge on the balance of the aggregate Vote for Contingencies, under Vote No. 11 of the Navy Estimates.

The Secretary to the Treasury.

I am, &c.
(signed) *W. G. Romaine.*

(E.)

Sir,

Treasury Chambers, 9 March 1865.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter of the 28th ultimo, stating that a fire took place in Devonport Dockyard in November last, by which damage was caused to the South Saw Mills, requiring between 900 *l.* and 800 *l.* to make good; and their Lordships have directed me to signify to you their approval of the proposal of the Lords Commissioners of the Admiralty to charge this expenditure to the balance of the aggregate Vote for Contingencies, under Vote 11 of the Navy Estimates.

The Secretary of the Admiralty.

I am, &c.
(signed) *F. Peel.*

(K.)

Sir,

Admiralty, 28 March 1866.

I AM directed by the Lords Commissioners of the Admiralty to acknowledge the receipt of your letter of the 24th instant, respecting the appropriation of certain moneys out of the aggregate surplus on Navy Votes for 1865-66, towards anticipated excesses on Vote No. 11.

In reply, I am commanded to transmit to you, for the information of the Lords Commissioners of Her Majesty's Treasury, the accompanying report of the Director of Works, in explanation of the item not allowed by the Treasury, and my Lords trust that under this explanation, and also under that afforded in respect of the Malta Harbour Expenditure, that the Lords of the Treasury will give their sanction to the full excess of 71,000 *l.*, as proposed by my Lords in their letter of the 19th instant.

The Secretary of the Treasury.

I am, &c.
(signed) *W. G. Romaine.*

(K.)

Sir,

Treasury Chambers, 31 March 1866.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter of the 28th instant, enclosing a report from the Director of Works, further relative to the appropriation of certain moneys, out of the aggregate surplus on Navy Votes for 1865-66, towards anticipated excesses on Vote No. 11; and I am directed by their Lordships to acquaint you, for the information of the Lords Commissioners of the Admiralty, that under the explanations now afforded, they approve of the following sums being temporarily defrayed out of the aggregate surplus on Navy Votes for 1865-66:—

	£.	s.	d.
Woolwich - - - Removal of Mud from Dock, No. 3, &c.	1,120	-	-
Chatham - - - Caisson to Dock, No. 3 - - -	1,230	-	-
Sheerness - - - Extension of Jetty - - -	1,460	-	-
Portsmouth - - - Ordinary Repairs - - -	1,460	-	-
Devonport - - - New Jetty, north side of Dock, No. 2	1,280	-	-
Pembroke - - - Traveller Ways side of Slip, No. 2 -	1,180	-	-
Ditto - - - Foundations for Steam Hammer, &c.	1,640	-	-
Ditto - - - Other Works - - -	1,520	-	-
Malta - - - Harbour Extension - - -	21,000	-	-

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under

My Lords also decline to sanction the sum of 1,800*l.* for repairs at the Admiralty being defrayed from the surplus of Navy Votes for 1865-66, and would call the serious attention of the Lords of the Admiralty to the large excess, as compared with the total sum taken for this service, viz., 5,000*l.*, and my Lords are of opinion that care should be taken to reduce the expenditure for the ensuing year 1866-67, so as to enable the excess to be met out of the provision that has been made in the Estimates for the year.

I am also desired to state that much inconvenience arises from the short period in which matters of this kind are brought before the notice of this Board, previous to the closing of the accounts; and my Lords request that in future their attention may be drawn to the probability of such question arising, in order that ample time may be given for their consideration.

The Secretary to the Admiralty.

I am, &c.
(signed) *Geo. A. Hamilton.*

(L.)

Sir,

Admiralty, 27 March 1866.

I AM commanded by my Lords Commissioners of the Admiralty to request you will inform the Lords Commissioners of Her Majesty's Treasury, that a misunderstanding has occurred in regard to the way in which the cost of providing tramways for two steam cranes at Pembroke Dockyard should be charged on the Navy Estimates.

It was agreed that the cost should be met out of Votes 8 and 10, Sec. A., Item 21, under which heading provision is made for similar work in all the Dockyards. The superintendent, however, by mistake, employed a contractor to execute the work, and under these circumstances, I am commanded by their Lordships to request that the Lords of the Treasury will sanction the expense incurred (1,000*l.*) being defrayed out of the estimated surplus upon the aggregate of the Navy Votes for 1865-66, or charged specially against Vote 11, Controller's Portion, "Repairs of Machinery and New Machinery made in the Yards," on which there will be a surplus of nearly 16,000*l.*

My Lords direct me to request an early decision in this matter, in order that payment may be made before 31st March.

The Secretary of the Treasury.

I am, &c.
(signed) *W. G. Romaine.*

(L.)

Sir,

Treasury, 29 March 1866.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter (E) of the 27th instant, respecting the mode of charging the expense incurred for tramway of steam cranes at Pembroke Dockyard; and I am to convey to you, for the information of the Lords Commissioners of the Admiralty, the approval of my Lords of the sum in question, viz., 1,000*l.*, being temporarily defrayed out of the aggregate surplus of Navy Votes for 1865-66, and to be charged to Vote 11.

The Secretary of the Admiralty.

I am, &c.
(signed) *Geo. A. Hamilton.*

(M.)

Sir,

Admiralty, 26 March 1866.

I AM commanded by my Lords Commissioners of the Admiralty to request you will state to the Lords Commissioners of Her Majesty's Treasury that the extension of the jetty at Hong Kong was authorised by this Department in October 1864, upon the report of the Commander in Chief that the work was necessary, owing to the silting up of the deposit in front of the yard, leaving the end of the jetty dry at low water, whilst a large portion of the structure was so low as to be covered at high water with 4 feet 9 inches depth at end.

The re-construction of the stone jetty has cost 478*l.* 6*s.* 8*d.*, and the estimated cost of the timber jetty, 112 feet in length, in extension of the stone jetty, which is fast progressing towards completion, is 827*l.*, making a total of 1,305*l.* 6*s.* 8*d.* (exclusive of foundations required for crane at end of jetty).

As no portion of this amount has been provided for, my Lords request the sanction of the Lords of the Treasury to the same appearing as an excess on the expenditure for this year, to be met out of the saving on the aggregate for the Navy Estimates generally.

I am directed by their Lordships to request an early reply.

The Secretary of the Treasury.

I am, &c.
(signed) *W. G. Romaine.*

P. S.—My Lords direct me to send you Vice Admiral Sir Percy Winter's letter of 6th August 1864, regarding the extension of the jetty, together with a plan, both of which, being in original, I am to request may be returned.

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

(M.)

Sir,

Treasury Chambers, 4 April 1866.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter of the 26th ultimo, requesting authority for an expenditure of 1,305 *l.* 6 *s.* 8 *d.*, which has been incurred in the extension of the jetty at Hong Kong, which has been rendered necessary by the deposit of silt in front of the yard; and I am to convey to you, for the information of the Lords Commissioners of the Admiralty, their Lordships sanction to the amount in question being charged on Vote No. 11, 1865-66, to be temporarily defrayed out of the surplus of the aggregate Votes.

The enclosures to your letter are returned herewith.

I am, &c.

The Secretary of the Admiralty.

(signed) *Hugh C. E. Childers.*

(O.)

Sir,

Admiralty, 28 April 1866.

I AM directed by the Lords Commissioners of the Admiralty to acknowledge the receipt of your letter of the 31st ultimo, conveying the sanction of the Lords Commissioners of Her Majesty's Treasury for certain sums being temporarily defrayed out of the aggregate surplus on Navy Votes for 1865-66, but declining to sanction the sum of 1,800 *l.* for repairs at the Admiralty, Whitehall, and Somerset House.

In reply, my Lords direct me to transmit to you a further explanation from the Director of Works in regard to this expenditure, and they trust that the Lords Commissioners of the Treasury will, under this explanation, approve of the expenditure incurred upon this item.

My Lords direct me further to acquaint you that in compliance with the request contained in the concluding paragraph of your letter, they will in future on the probability of an excess again occurring on the aggregate of Vote No. 11, take the earliest opportunity of communicating with the Lords of the Treasury on the subject, that ample time may be given for its consideration.

I am, &c.

The Secretary to the Treasury.

(signed) *W. G. Romaine.*

(O.)

Sir,

Treasury Chambers, 1 June 1866.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter of the 28th April last, submitting a letter from the Director of Works to the Admiralty respecting the expenditure for repairs at Whitehall and Somerset House, that the sanction of this Board may be given to the appropriation of 1,800 *l.* out of the surplus on the aggregate Votes for Naval Services 1865-66 to cover this expenditure.

I am to convey to you, for the information of the Lords Commissioners of the Admiralty, the approval of my Lords to the temporary appropriation of this sum as requested; but I am to add that my Lords would impress upon the attention of the Board of Admiralty that strict instructions should be given to confine the expenditure on account of this service within the amount voted in each year; and my Lords rely on the assurance given in the concluding paragraph of this letter that the approval of this Board will be sought previous to any works being undertaken which may cause an excess over the Vote.

I am, &c.

The Secretary of the Admiralty,
&c. &c. &c.

(signed) *Hugh C. E. Childers.*

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 12.				
MEDICINES AND MEDICAL STORES:	£. s. d.	£ s. d.	£ s. d.	£ s. d.
Hospital and Infirmary Provisions and Stores -	45,178 11 9	35,700 - -	- -	9,478 11 9
Medicines and Surgical Instruments - - -	9,134 13 11	8,500 - -	- -	634 13 11
Subsistence of Seamen, &c., at Sick Quarters, &c. -	16,533 10 6	15,100 - -		1,433 10 6
Expenses of carrying out Contagious Diseases Act of 1864, and for contributions for Lock Wards at the Out Ports - - - - -	7,169 6 5	4,000 - -	- -	*3,169 6 5
Freight of Medical Stores, Funerals of Seamen, and other Miscellaneous Disbursements for Medical Service - - - - -	1,111 7 11	1,500 - -	388 12 1	- -
£.	79,127 10 6	64,800 - -	388 12 1	14,716 2 7
Deficiency - - -	£ 14,327 10 6		£ 14,327 10 6	

* Copy of application made to Treasury, and Treasury reply appended (see pages 2 and 3).

Sir,

2 September 1865.

I AM directed by the Lords Commissioners of the Admiralty to acquaint you that they have received reports showing the necessity of additional accommodation for patients in the Lock Wards of the Portsmouth, Portsea, and Gosport Hospital, and that they propose to add another wing to the hospital for this purpose, the expense of which is estimated at 2,380 l.

This sum will be in excess of the amount voted in the Estimates for the present financial year, for the purpose of carrying out the Contagious Diseases Act of 1864, and for contributions for Lock Wards at the out-ports.

I am, therefore, to request that you will move the Lords Commissioners of Her Majesty's Treasury to sanction the proposed additional expenditure at Portsmouth.

The Secretary of the Treasury.

I am, &c.
(signed) W. G. Romaine.

Sir,

Treasury Chambers, 6 September 1865.

WITH reference to your letter of the 2nd instant, proposing to add another wing to the Portsmouth, Portsea, and Gosport Hospital, at a cost of 2,380 l., for the purpose of increasing the accommodation in the Lock Wards, I am directed by the Lords Commissioners of Her Majesty's Treasury to request that my Lords may be informed of the manner in which the Lords Commissioners of the Admiralty propose to provide for the additional expenditure which will be incurred in this service.

The Secretary of the Admiralty.

I am, &c.
(signed) Geo. A. Hamilton.

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Excess: occasioned by additional Expenditure having been incurred for the Sick in China, and on other foreign stations by increased prices of provisions, wine, clothing, and medicines supplied to naval hospitals, as compared with those of former years; and by the Expenditure for supplies to naval hospitals at home during the year having been brought to account more closely up.

Excess: arising from increased Prices of Medicines.

Excess: occasioned by additional Expenses incurred for sick quarters in China.

Excess: arising from the Expenditure incurred in carrying out the Contagious Diseases Act having been in excess of the amount provided; the Treasury sanction was obtained by letter dated 6th November 1865,* for 2,380 *l.* of this excess.

Surplus: this is merely the difference between the actual Expenditure and the Estimate based on payments in previous years.

Sir,

2 October 1865.

WITH reference to your letter of the 6th ultimo, relative to an additional wing to the Portsmouth, Portsea, and Gosport Hospital, for the purpose of increasing the accommodation of the Lock Wards, and requesting to be informed how it is proposed to provide for the additional expenditure which will be incurred in carrying out the same, I am to acquaint you, for the information of the Lords of Her Majesty's Treasury, that the state of the Vote, No. 12, under the item of "Expenses for carrying out the Contagious Diseases Act of 1864, and for Contributions for Lock Wards at the Out-ports," is as follows: viz.—

	£.	s.	d.
Voted in Estimates for 1865-66	4,000	—	—
Expended to this date	2,163	15	3
Leaving available	1,836	4	9
Liabilities to 31st March 1866, as far as can at present be estimated	1,479	15	—
	£.	356	9 9

The sum taken in the Estimates under the head of the Contagious Diseases Act being very little more than sufficient to meet the necessary current and temporary expenses, my Lords would have been glad to have postponed the question of enlarging the present Lock Wards of the hospitals at Portsmouth and Devonport until the Estimates for the next financial year were being prepared. The evil, however, appeared to require that immediate remedies should be applied. The state of disease at Sheerness, Portsmouth, and Plymouth, was reported to my Lords to be most injurious to the service, and that there was an urgent necessity to make adequate exertion to remove or mitigate so great an evil.

The subject has again been recently brought forcibly before my Lords in the report of the Medical Director General of the Health of the Navy, a copy of which is sent herewith.

The

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under

The state of Sheerness may be gathered from the following paragraph:—"There were 124 cases of syphilis, and 18 of gonorrhœa in the 'Cumberland,' the guard-ship of the Steam Reserve at Sheerness: 50 of the cases of syphilis were sent to hospital; and of these, one was invalided. The total number of days' sickness on board ship and in hospital from all the cases of syphilis in the 'Cumberland,' was 3,566."

At Portsmouth and Plymouth matters were in a worse state, and appeared to my Lords to call for immediate and decisive efforts.

Referring again to the statistical report of the Medical Director General, as regards the disease at the Home Stations, my Lords wish the more particularly to draw the attention of the Lords of the Treasury to paragraphs marked 1-7, at pages 10, 11, and 12, which refer to Portsmouth and Plymouth. My Lords further feel themselves bound to lose as little time as possible in facilitating and making effectual the operation of the Contagious Diseases Act of last year. This could not be done if the police were enabled to proceed against females known to be diseased, for want of room for them in the hospital.

My Lords continue to receive from the metropolitan police, with whom the working of the Act is placed, most satisfactory reports of the utility of the Act, as far as it has been possible to bring it into operation. My Lords believe the state of disease at the ports of Portsmouth and Plymouth would have been much worse but for the number of bad cases which are continually withdrawn from the streets and cured in the hospitals, or those women who run away from the town on hearing that measures are to be taken against them. After full deliberation on the most economical way in which the above objects could be obtained, my Lords have reluctantly come to the conclusion that an additional wing, or Lock Ward, must be built to the present Portsmouth, Portsea, and Gosport Hospital, at an expense of 2,380*l.*, that being the lowest tender. A portion of this sum will probably have to be paid in the present financial year. The amount cannot immediately be ascertained, as the works have not yet been begun, awaiting the completion of the deed of conveyance. Tenders for an additional wing to the Royal Albert Hospital at Devonport will be called for as soon as the conveyance of the land from the War Office, and the terms of agreement with the hospital authorities, have been settled. It is not expected that payment will be required for more than a small portion of the cost of the work within the present financial year.

The Lords of the Treasury will observe that any payment made upon either or both of the works herein mentioned which exceeds the estimated balance of 356*l.* 9*s.* 9*d.* will *pro tanto* cause an excess on the item in Vote 12.

HEADS OF SERVICE.	EXPENDITURE,		ESTIMATE,		EXPENDITURE,			
	1865-66.		1865-66.		Less than Estimate.		More than Estimate.	
Vote No. 13.								
MISCELLANEOUS SERVICES:	£.	s. d.	£.	s. d.	£.	s. d.	£.	s. d.
Piloting and Towing Her Majesty's Ships - -	8,466	- 5	10,000	- -	1,533	19 7	- - -	- - -
Commanders in Chief, Expenses attendant on - -	3,358	17 -	4,000	- -	641	3 -	- - -	- - -
Courts Martial - - - - -	1,085	1 9	1,500	- -	414	18 3	- - -	- - -
Passage Money and Conveyance of Officers, Seamen, } and Marines - - - - -	64,016	4 4	38,000	- -	- - -	- - -	26,016	4 4
Telegraphic Communications, Expense of - -	6,360	13 4	6,400	- -	39	6 8	- - -	- - -
Compensation to Officers, &c., for Losses by Ship- } wreck, &c. - - - - -	5,755	9 1	1,500	- -	- - -	- - -	4,255	9 1
Carried forward - - - £.	89,042	5 11	61,400	- -	2,629	7 6	30,271	13 5

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

It is not expected that there will be any surplus on the other items of this vote.

My Lords therefore request that you will move the Lords of the Treasury to sanction the expected excess on Vote 12; the excess to be defrayed out of the surplus which it is expected will arise on the aggregate Votes for the Navy of 1865-66.

The Secretary of the Treasury.

I am, &c.
(signed) *W. G. Romaine.*

(14,610.)

Sir,

Treasury Chambers, 6 November 1865.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter of the 2nd October (M. M.) in reply to the letter of this Board of the 6th September, in which you explain the manner in which it is proposed to provide the increased accommodation required in the Lock Wards of the Portsmouth, Portsea, and Gosport Hospital, and request the sanction of this Board to the application of so much of the sum of 2,380 *l.* as will be necessary to cover the deficiency which will arise on Vote 12 out of the expected surplus on the aggregate Votes for 1865-66; and I am directed by their Lordships to convey to you, for the information of the Lords Commissioners of the Admiralty, their approval, under the circumstances, of the appropriation of the sum that may be required for this purpose out of the aggregate savings on the Votes, provided the total cost of the service does not exceed the sum of 2,380 *l.*

I am to suggest that, in future Estimates, the current annual expenditure in carrying out the objects of the Contagious Diseases Act may be distinguished from grants for building or enlarging hospitals; and I am to express my Lords' hope, that when the cost of such buildings or of additional wings is defrayed from public funds, security may be taken for their exclusive use either in carrying out the Contagious Diseases Act, or otherwise for the public service.

W. C. Romaine, Esq.,
&c. &c. &c.

I am, &c.
(signed) *Hugh C. E. Childers.*

CAUSES OF VARIATION.

Surpluses: arising from the actual Expenditure having been less than the Estimate, which was based upon the average payments of the three preceding years.

Excess: arising from the claims for Passages of Officers, &c., chiefly to and from the East India and China stations having been more numerous than was anticipated on preparing the Estimate, based upon the average Expenditure of the three preceding years.

Surplus: this is merely the difference between an estimated and an actual Expenditure.

Excess: arising from the payment of Compensation for loss of clothing, &c. to the Officers and Crew of Her Majesty's ship "Bombay," destroyed by fire, and Her Majesty's ship "Bulldog," lost in the West Indies.

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 13— <i>continued.</i>	£. s. d.	£. s. d.	£. s. d.	£. s. d.
MISCELLANEOUS SERVICES— <i>continued.</i>				
Brought forward - - -	89,042 5 11	61,400 - -	2,629 7 6	30,271 13 5
Contributions in Aid of Sailors' Homes - - -	425 - -	425 - -	—	—
Contributions in aid of Religious and Charitable } Institutions - - - - - }	1,444 - 8	2,000 - -	555 19 4	- - -
Per-centage to Banks on Money remitted to Naval } Accountants - - - - - }	1,468 9 6	1,500 - -	31 10 6	- - -
Maintenance of a Floating Light Vessel at the Warner	370 - -	370 - -	—	—
Medals for Seamen and Marines - - - -	40 12 3	100 - -	59 7 9	- - -
Rewards for Services against Pirates - - -	2,630 - -	2,630 - -	—	—
Subsistence, &c. of Officers Superintending Ships } Building by Contract - - - - }	2,258 9 4	2,000 - -	- - -	258 9 4
Conveyance of Prisoners between Gaol and Her } Majesty's Ships - - - - - }	1,244 - 10	1,000 - -	- - -	244 - 10
Law Charges on the Purchase of Property, &c. -	2,547 10 6	3,500 - -	952 9 6	- - -
Stamps on Contracts and on Officers' Commissions, } &c. - - - - - }	4,930 15 -	3,000 - -	- - -	1,930 15 -
Hire of Ships and Vessels - - - - -	76 7 6	200 - -	123 12 6	- - -
Assistance rendered to Her Majesty's Ships in Distress	1,004 2 6	500 - -	- - -	504 2 6
Compensation for Damage done by Her Majesty's } Ships - - - - - }	10,682 17 7	4,000 - -	- - -	6,682 17 7
Gratuities for Wounds and Special Services - -	5,171 2 1	3,500 - -	- - -	1,671 2 1
Expense of Committees - - - - -	6,172 7 8	1,500 - -	- - -	4,672 7 8
Compensation to Owners of Merchant Vessels for } providing Substitutes for Volunteers - - - }	135 16 9	250 - -	114 3 3	- - -
Carried forward - - -	129,643 18 1	87,875 - -	4,466 10 4	46,235 8 5

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Surplus : occasioned by fewer Contributions having been made in aid of Religious and Charitable Institutions than were provided for.

Surplus : arising from the actual Expenditure having fallen short of the Estimate, which was based upon the average payments of the three preceding years.

Surplus : arising from fewer Medals having been granted than were provided for.

Excess : arising from payment of an Allowance to Captain Cowper Coles, R.N., whilst superintending the application of his Patent for cupola shields in ships of war.

Excess : arising from the actual Expenditure having exceeded the amount provided for this casual service.

Surplus : arising from the Law Charges connected with the purchase of property having fallen short of the amount provided for this service, based on the average Expenditure of previous years.

Excess : caused by more having been paid for Stamps and for public Advertisements than was provided for in the Estimate, based on the average payments of the three preceding years.

Surplus : arising from the actual Expenditure for this casual service having fallen short of the Estimate.

Excess : arising from payment for assistance rendered to Her Majesty's ship "Conqueror" by the "Fear Not," in the inland sea of Japan.

Excess : arising from payment of compensation to the owners, master, and crew of the schooner "Brackenholme," and to the owners of the cargo of that vessel, which was run into and sunk by Her Majesty's ship "Supply" in April 1865.

Excess : arising from the Expenditure for wounds and injuries, and to persons on retirement and discharge from the service not entitled to pensions, and for special services, having been greater than was provided for in the Estimate, which was based on the average payments of the three previous years.

Excess : chiefly arising from the expense of Committees in connection with the Contagious Diseases Act, on Floating Obstructions, on Turret Ships, on Gun Cotton, Armstrong and Whitworth Guns, and on the Pay and Position of Medical Officers.

Surplus : arising from the actual Expenditure having fallen short of the Estimate, founded on the average payments of previous years.

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE.	
			Less than Estimate.	Less than Estimate.
NOTE No. 13—continued.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
MISCELLANEOUS SERVICES—continued.				
Brought forward - - -	129,643 18 1	87,875 - -	4,466 10 4	46,235 8 5
Books and Stationery for Schools - - - -	3,484 11 9	3,500 - -	15 8 3	- - -
Doomsday Book of the Admiralty Property - -	485 5 6	550 - -	64 14 6	- - -
Loss by Exchange, &c. - - - - -	5,706 10 4	4,000 - -	- - -	1,706 10 4
Lodging Allowances to Officers - - - -	6,849 5 8	2,800 - -	- - -	4,049 5 8
Miscellaneous Payments and Allowances - -	6,531 7 3	5,200 - -	- - -	1,331 7 3
Expenses incurred in connection with the visit of } French Fleet - - - - - }	6,642 5 3	- - -	- - -	*6,642 5 3
£.	159,343 3 10	103,925 - -	4,546 13 1	59,964 16 11
Deficiency - - -	£. 55,418 3 10		£. 55,418 3 10	

* Copy of application made to Treasury, and

Sir,
I AM commanded by my Lords Commissioners of the Admiralty, to request you will bring under the notice of the Lords Commissioners of Her Majesty's Treasury the following expenses, which were incurred in connection with the late visit of the French fleet to Portsmouth, details of which are herewith transmitted, viz.:

	£. s. d.
1. Public entertainments given by the Lords of the Admiralty - - - - -	5,504 - 9
2. Entertainment given by officers of the Channel Squadron - - - - -	530 9 -
3. Deficiency in the amount to meet the cost of public entertainment given by the Mayor and Corporation	1,174 1 8
£.	7,208 11 5

With regard to the two first items, my Lords request the sanction of the Lords of the Treasury to their being charged to Miscellaneous Vote in the Naval Estimates; and with respect to the third item, my Lords will be glad to receive the opinion of the Treasury, whether, as the civic entertainment was a part of the whole reception, the deficiency in the amount contributed to meet the expenses incurred might not be defrayed by the public, and if so, whether it should be charged to Naval Votes, observing that the occasion was of so unprecedented a nature, that my Lords are of opinion that a departure from the usual practice might be sanctioned in this case, as it would be unfortunate that the fête given by the townspeople on so liberal a scale should be the subject of disagreeable results to them.

The Secretary of the Treasury.

I am, &c.
(signed) C. Paget.

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Surplus: this is merely the difference between an estimated and actual Expenditure.

Surplus: arising from the professional charges incurred in connection with this service during the year having fallen short of the Estimate.

Excess: caused by the net loss by exchange having exceeded the Estimate, based on the results of previous years, arising chiefly from the fixed value of the Mexican dollar having been raised.

Excess: larger Expenditure incurred to meet the requirements of the service than was provided for in the Estimate, based on the payments of previous years.

Excess: arising from the actual Expenditure having exceeded the amount provided for "Contingencies," based on the payments of previous years.

Excess: being Expenditure incurred in connection with the entertainment of the French Fleet for which no provision was made in the Estimates, but which was directed to be borne by the Naval Department by Treasury Letter of 6th December 1865.

Treasury reply appended (*see* page 58).

My Lord,

Treasury Chambers, 6 December 1865.

THE Lords, &c. have had before them your Lordship's letter of the 1st instant, relative to the entertainment given to the officers of the French fleet on the occasion of their late visit to Portsmouth, and in which you suggest that the cost of the two entertainments of a public nature, and the balance of the cost of the civic entertainment which remain un-contributed, should be charged to the public.

I am to request that you will inform the Lords Commissioners of the Admiralty that my Lords concur with them in opinion that the whole of the expenditure as specified in your letter, viz., 5,504 *l.* 0 *s.* 9 *d.*, the cost of the entertainment given by them, 530 *l.* 9 *s.*, the cost of the entertainment given by the officers of the Channel Squadron, and 1,174 *l.* 1 *s.* 8 *d.*, the deficiency in the amount subscribed to meet the cost of the civic entertainment, should, under the special circumstances of the case, be defrayed out of public funds; and my Lords therefore approve of these sums, amounting to 7,208 *l.* 11 *s.* 5 *d.*, being charged to the Miscellaneous Vote in the Navy Estimates, under the head of expenses incurred in connection with the visit of the French fleet.

My Lords concur with the Lords Commissioners of the Admiralty, that as the municipal entertainment, though not managed by the Naval Department, was recognised by their Lordships as forming part of the reception of the French fleet, the deficiency in the cost of the fête so satisfactorily conducted by the townspeople, should be made good to them.

I am, &c.

The Secretary of the Admiralty.

(signed) *Hugh C. E. Childers.*

EPLANATORY STATEMENT of the Sums Expended, " More or Less " than those Estimated, under

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 14.				
HALF PAY, &c.:	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Half Pay, Reserved and Retired Pay - - -	685,888 3 7	698,195 - -	12,306 16 5	- - -
Saving - - - £. 12,306 16 5			£. 12,306 16 5	
VOTE No. 15.				
MILITARY PENSIONS, &c. :				
Pensions for Good and Meritorious Services - -	6,341 17 3	6,150 - -	- - -	191 17 3
Pensions for Conspicuous Bravery - - -	160 10 2	180 - -	19 9 10	- - -
Flag Officers' Retired Service Pensions - - -	1,499 19 11	1,500 - -	- - 1	- - -
Pensions to Commissioned and Warrant Officers -	34,521 10 9	38,574 - -	4,052 9 3	- - -
Pensions to Widows and Relatives of Officers slain -	10,398 12 6	10,248 - -	- - -	150 12 6
Pensions to Widows of Naval Officers - - -	147,898 17 11	159,312 - -	11,413 2 1	- - -
Pensions to Widows of Marine Officers - - -	10,430 18 7	11,518 - -	1,087 1 5	- - -
Compassionate List - - - - - -	15,387 - -	15,000 - -	- - -	387 - -
Pensions to Old and Disabled Commissioned Officers } (Out Pensioners of Greenwich Hospital) - - }	4,946 18 5	5,019 10 -	72 11 7	- - -
Pensions and Gratuities to Seamen and Marines } (Out Pensioners, &c., of Greenwich Hospital) - }	270,255 3 10	259,709 10 -	- - -	10,545 13 10
£.	501,841 9 4	507,211 - -	16,644 14 3	11,275 3 7
Saving - - - £. 5,369 10 8			£. 5,369 10 8	

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Surplus: caused by a less number of officers having been placed on half-pay than was provided for when the Estimate was framed.

Excess: arising from fluctuations in the period for which Pensions are claimed.

Surplus: arising from fluctuations in the period for which Pensions are claimed.

Surplus: fractional difference.

Surplus: occasioned by the death of Pensioners.

Excess: arising from fluctuations in the period in which Pensions are claimed.

Surplus: occasioned by the death of Pensioners.

Excess: arising from the grants of the Compassionate Allowance having been greater than the amount provided.

Surplus: arising from fluctuations in the period in which Pensions are claimed.

Excess: occasioned by a large number of Pensioners having reverted to their Naval Out Pensions, in October 1865, under the new regulations for the management of Greenwich Hospital, for the payment of whose Pensions no provision was made, but for which number 15 *l.* per head a year will be paid into the Exchequer, out of the funds of Greenwich Hospital.

EXPLANATORY STATEMENT of the Sums Expended, " More or Less " than those Estimated, under

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 16.				
CIVIL PENSIONS, &c.:	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Pensions, Civil, Salaried Officers - - - -	85,693 1 11	90,470 5 -	4,777 3 1	- -
Pensions, Civil, Artificers - - - - -	84,905 18 6	84,556 15 -	- -	349 3 6
Pensions, Civil, Coast Guard - - - - -	28,670 10 3	32,496 - -	3,825 9 9	- -
Pensions, Civil, Police - - - - -	623 14 2	510 - -	- -	113 14 2
£.	199,893 4 10	208,033 - -	8,602 12 10	462 17 8
Saving - - - £. 8,139 15 2			£. 8,139 15 2	
VOTE No. 17.				
ARMY DEPARTMENT—CONVEYANCE OF TROOPS:				
Freight of Ships on Monthly Pay - - - -	14 1 6	- - -	- -	14 1 6
Conveyance of Troops Abroad, &c. - - -	87,634 12 4	97,400 - -	9,765 7 8	- -
Freight of Army Stores, Abroad and Homeward -	44,908 13 3	49,500 - -	4,591 6 9	- -
Intercolonial Conveyance of Troops and Mess -	67,721 12 -	84,540 - -	16,818 8 -	- -
Intercolonial Freight of Army Stores - - -	12,468 1 10	12,500 - -	31 18 2	- -
Mess Allowances to Army Officers, &c. - - -	7,264 - 6	10,000 - -	2,735 19 6	- -
Freight of Ships on Short Services - - - -	14,188 17 4	8,880 - -	- -	5,308 17 4
Passage, Money Army - - - - -	34,169 15 5	40,000 - -	5,830 4 7	- -
Fitting Transports and Freight Ships - - -	1,402 3 4	3,270 - -	1,867 16 8	- -
Bedding and other Stores for Troops - - -	16,986 - 8	11,500 - -	- -	5,486 - 8
Carried forward - - - £.	286,757 18 2	317,590 - -	41,641 1 4	10,808 19 6

each of the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Surplus: arising from casualties by death.

Excess: caused by fluctuations in the periods in which Pensions are claimed.

Surplus: caused by fluctuations in the periods in which Pensions are claimed.

Excess: occasioned by a greater number of men having been placed on the Pension list during the course of the year than was anticipated when the Estimate was framed.

Excess: occasioned by an arrear charge in respect of hostilities in China.

Surplus: owing to the Indian Relief Services being less than estimated for, and the Troops from New Zealand not being brought home as early as was expected.

Surplus: caused by repayments to Army Funds for freight of coals having been less than expected, owing to a portion of the Expenditure having been posted to 1864-65, under the arrangement sanctioned by Treasury Letter of the 5th June 1865, by which the expenditure on account of the Admiralty, claimed by other Departments of Government, is brought to account more closely within the period to which it relates.

Surplus: caused by the repayments to Army Funds for the purchase of the "Alexandra" employed in New Zealand, provided for in the Estimate, having been charged to the Vote for 1864-65, under the operation of the arrangement above referred to, and by the expenditure in other colonies having been less than the average of previous years upon which the Estimate was based.

Surplus: this is merely the difference between an estimated and an actual Expenditure.

Surplus: caused by the charge for Messing Officers with the Troops from New Zealand, estimated for in this item, having been included in the rate of freight, and therefore brought to account under the head of "Conveyance of Troops."

Excess: owing to the removal of Troops between England and Ireland not contemplated when the Estimate was framed.

Surplus: owing to the Expenditure being less than the average of the preceding years upon which the Estimate was based.

Surplus: owing to the cost of fitting ships for troops from New Zealand having been included in the rates of freight, and therefore brought to account under the head of "Conveyance of Troops."

Excess: occasioned by it having been necessary to replenish the stock in England to a greater extent than contemplated, owing to the expected returns into Store not being available when the supplies were required.

EXPLANATORY STATEMENT of the Sums Expended, "More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE,	ESTIMATE,	EXPENDITURE,	
	1865-66.	1865-66.	Less than Estimate.	More than Estimate.
VOTE No. 17—continued.				
ARMY DEPARTMENT (CONVEYANCE OF TROOPS)—continued.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Brought forward - - -	286,757 18 2	317,590 - -	41,641 1 4	10,808 19 6
Forage and Stores for Horses - - - - -	2,853 1 -	100 - -	- -	2,753 1 -
Pay and contingent expenses; Agents for Transports Afloat - - - - -	2,041 10 6	2,190 - -	148 9 6	- -
Provisions for Troops - - - - -	38,504 15 6	38,000 - -	- -	504 15 6
£.	330,157 5 2	357,880 - -	41,789 10 10	14,066 16 -
Abate, Credit:				
Amount repaid by Indian Government on account of } Indian Relief Services - - - - - }	25,059 6 8	37,300 - -	12,240 13 4	- -
£.	305,097 18 6	320,580 - -	29,548 17 6	14,066 16 -
Saving - - - £. 15,482 1 6			£. 15,482 1 6	
VOTE No. 18.				
GREENWICH HOSPITAL:				
	£. s. d.			
Establishment at the Admiralty -	408 11 1			
Office of Comptroller of Greenwich } Hospital Estates - - - }	250 - -			
HOUSEHOLD AND INFIRMARY:				
Salaries - - - - -	3,976 - -			
Rents, Rates, Taxes, &c. - -	244 2 6			
Contingencies - - - - -	1,133 2 1			
Money Allowances to In-Pensioners -	1,729 1 9			
Wages to Labourers, &c. - -	3,817 5 -			
Wages to Police - - - - -	358 11 -			
New Works, &c. - - - - -	2,725 1 10			
Provisions purchased - - - - -	4,816 9 5			
Allowances in lieu of Provisions to } In-Pensioners - - - }	96 9 -			
Stores purchased and repaired -	3,965 8 2			
Medicines purchased - - - - -	192 3 4			
Surgical Instruments - - - - -	61 9 -			
Miscellaneous Disbursements - -	1,311 18 8			
Superannuation Allowances to } Clerks, Nurses, &c. - - }	672 4 3			
	25,757 17 1	34,000 - -	8,242 2 11	
Carried forward - - - £.	25,757 17 1	34,000 - -	8,242 2 11	

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Excess: owing principally to the payment of a large War Office claim for prior years provided for in the Vote for 1864-65, the final adjustment of which could not be made in time to bring the charge to account in that year.

Surplus: owing to remittances by the Transport Officers in New Zealand for Christmas Quarter 1865, not having been paid before the 31st March 1866.

Excess: caused by the repayments for ration stoppages having been less than were anticipated when the Estimates were framed.

Excess: arising from the numbers conveyed to India having been fewer than estimated for, which caused a corresponding reduction in the Credit receivable.

Surplus: occasioned by provision having been taken in the Supplementary Estimate for 1865-66, for the maintenance of 600 In-Pensioners, whereas the average number borne for the six months ending 31st March 1866, was only 390.

EXPLANATORY STATEMENT of the Sums Expended, " More or Less" than those Estimated, under each of

HEADS OF SERVICE.	EXPENDITURE, 1865-66.	ESTIMATE, 1865-66.	EXPENDITURE,	
			Less than Estimate.	More than Estimate.
VOTE No. 18—continued.				
GREENWICH HOSPITAL—continued.				
Brought forward - - -	25,757 17 1	34,000 - -	8,242 2 11	—
SCHOOL AND SCHOOL INFIRMARY:				
Salaries - - - - -	£. s. d. 1,768 - 9			
Rents, Rates, Taxes, &c. - - -	216 3 3			
Contingencies - - - - -	405 3 -			
Wages to Labourers, &c. - - -	1,561 5 10			
New Works, &c. - - - - -	496 14 9			
Provisions purchased - - - -	3,567 10 7			
Stores purchased and repaired - -	3,388 16 2			
Allowances in lieu of Outfit to } Greenwich School Boys - - - }	152 12 -			
Superannuation Allowances to Mas- } ters, &c. - - - - - }	66 17 1			
	11,623 3 5	11,500 - -	- -	123 3 5
Pensions to Flag Officers and other Officers - -	95 1 3	915 - -	819 18 9	- -
Pensions and Allowances to Seamen, &c. - - -	20,504 17 7	17,000 - -	- -	3,504 17 7
Gratuities to Widows of Seamen, &c. - - -	393 17 11	500 - -	106 2 1	- -
£.	58,374 17 3	63,915 - -	9,168 3 9	3,628 1 -
Saving - - -	£. 5,540 2 9		£. 5,540 2 9	
BALANCES Irrecoverable - - - - -	£. 872 5 -	- - -	- -	872 5 -

the Subdivisions of the Votes included in the foregoing Statement, &c.—*continued.*

CAUSES OF VARIATION.

Excess: this is merely the difference between an Estimate and Actual Expenditure.

Surplus: occasioned by these Pensions, although provided for in the Supplementary Estimate, **not** having come into course of payment, except in a few instances, until 1st April 1866.

Excess: arising from Money Allowances having been granted to 985 In-Pensioners, who elected to leave Greenwich Hospital on the 1st October 1865, whereas, when the Supplementary Estimate was framed, it was expected that not more than 800 In-Pensioners would elect to leave Greenwich Hospital.

Surplus: this is the difference between the Estimate and the Actual Expenditure under this head.

Excess: arising from Balances due on the Cash Accounts of the Officers acting as Paymasters of Her Majesty's Ships "Ringdove," "Psyche," "Dasher," "Nereus," and "Snap," found to be irrecoverable; from Public Money lost in Her Majesty's Ship "Bombay," destroyed by fire; from Public Money lost in the wreck of the Slaver "Enchantress"; from Public Money lost overboard from Her Majesty's Ship "Flora," during a heavy swell; from the Balance due on the Cash Account of the Assistant Paymaster in charge at Shanghai, on account of a Payment for which a sufficient voucher was not produced; and from Public Money lost through the defalcation of a Marine Pay Serjeant at Chatham.

On the other hand, the Gross Charge upon this head for the year 1865-66 of 2,642 *l.* 13 *s.* 4 *d.*, has been reduced by a Credit amounting to 1,770 *l.* 8 *s.* 4 *d.*; a portion of the amount written off as irrecoverable in the year 1864-65, on the Cash Account of the Paymaster of the "Ringdove," which is now accounted for by the production of Vouchers.

J. Beeby,
Accountant General of the Navy.

BALANCE SHEET, showing the LEDGER BALANCES on the 30th September 1866, the Date on which the Annual Account of NAVAL RECEIPT and EXPENDITURE was closed;—also, the Proportion of the AVAILABLE BALANCE remaining on that Day applicable to the still open Account of 1866-67; leaving the Unappropriated Balance of £.187,923. 13. 0. on the Grants for 1865-66, as stated in the Account.

N.B.—To obviate the necessity of introducing into the following Statement the separate results of all the Accounts, the Balances in the Ledger are shown in *Classes*, except in those instances in which it has been deemed advisable to add special explanations, with the view of illustrating the principle upon which the Account has been prepared, and the final Balance struck. The Account of Receipt and Expenditure is one of Receipts and Payments within the Year, and has been kept open for Six Months after the Expiration of the Year to which it refers, under the authority of Parliament, that all Payments posted within that period, relating to the service of the past Year, might be included in it, and the whole Expenditure on Imprest be finally audited before declaring the Balance. The postings of the Receipts and Payments comprised in that Account being therefore spread over a period of Eighteen Months, the proof of the correctness of the Expenditure, as compared with the Grants of 1865-66, may be shown either by the Balances which remained in the Books at the date to which the Account of Receipt and Expenditure extends (*viz.* 31st March 1866), or by those which remained at the Date when it was definitively closed (*viz.* 30th September 1866). The Balance Sheet of the latter Date is given, as it exhibits a more complete statement of the Accounts.

Number of Accounts.	DESCRIPTION OF ACCOUNTS.	Dr.		Cr.	
1	HER MAJESTY'S EXCHEQUER :	£.	s. d.	£.	s. d.
	For Balance of Grants for the Naval Service unissued on the 30th September 1866 - - - - -	6,335,367	- -	—	
1	HER MAJESTY'S EXCHEQUER (Old Store and Extra Receipt Moneys Account):				
	There is no Balance on this Account, the transfer bill to the Exchequer being charged in the Ledger to the Debit of the Account simultaneously with the transfer of the Credits on account of the Naval Old Store and Extra Receipt Moneys from their respective heads - - - - -	—		—	
1	HER MAJESTY'S PAYMASTER GENERAL (Cash):				
	For Navy Cash Balance on the 30th September 1866 - - -	25,723	5 2	—	
1	BILLS PAYABLE:				
	For Bills issued for Payment, but remaining unpaid on the 30th September 1866 - - - - -	-	- -	513,825	18 3
1	OUTSTANDING BILLS, DRAFTS, &c.:				
	For Bills drawn by Accounting Officers not presented for payment, and which have been outstanding for more than six years -	-	- -	4,613	19 4
1	SALARY LISTS:				
	For amount of Salaries on account of the Naval Department unpaid or paid, but included in accounts not passed on 30th September 1866 - - - - -	-	- -	119,906	15 11
1	PRIZE REMITTANCES:				
	For Repayments on account of Prize Money paid by Naval Accountants, which Payments were not brought to account in the Ledger on the 30th September 1866 - - - - -	-	- -	129	7 -
1	MEDICAL SUPPLEMENTAL FUND:				
	For Contributions received from Naval Medical Officers remaining to be paid to the Agents for the Fund - - - - -	-	- -	3	3 -
1	GREENWICH HOSPITAL INCOME ACCOUNT:				
	For Amount of Penalty for non-delivery of meat at Greenwich Hospital recovered from Contractor, but not yet paid over to the funds of that establishment - - - - -	-	- -	- 10	6
1	SICK MESS FUND:				
	For Value of the Savings of Rations of Seamen on board Her Majesty's Ships while on the Sick List, from which a fund is formed for the purchase of medical comforts - - - - -	-	- -	6,572	5 8
10	- - - - - Carried forward - - - £.	6,361,090	5 2	645,051	19 8

Number of Accounts.	DESCRIPTION OF ACCOUNTS.	Dr.			Cr.		
		£.	s.	d.	£.	s.	d.
10	- - - - - Brought forward - - -	6,361,090	5	2	645,051	19	8
1	PROPERTY AND INCOME TAX: For Deductions on account of the Naval Department remaining to be paid to the Receiver General of Inland Revenue (Stamps and Taxes) - - - - -	-	-	-	2,928	11	6
1	DEPOSITS FOR MARINE OFFICERS' EQUIPMENTS: For Amount of Outstanding Deposits on account of the outfit of Gentlemen Cadets at the Royal Naval College, Portsmouth, previous to their receiving Commissions in the Royal Marine Corps, the Accounts for such Disbursements not yet having been allowed - - - - -	-	-	-	1,199	12	10
5	CREDITS OF MARINES: For Balance of Deposits by Marines in the hands of the Divisional Paymasters, and standing to their credit in the Marine Ledger -	-	-	-	2,859	7	7
6	CREDITS OF HOSPITAL PATIENTS: For Value of Money and Effects of deceased and other Patients in Haslar, Plymouth, Haulbowline, Yarmouth, Greenwich, and Jamaica Hospitals, taken on public charge by the Accountant Officers of those Establishments until claimed - - - -	-	-	-	772	2	-
1	WAGES TO GREENWICH HOSPITAL PATIENTS: For Amount of Wages due to deceased Patients of Greenwich Hospital, remaining to be paid over to their legal representatives -	-	-	-	8	11	5
1	CREDITS OF PRISONERS, LEWES PRISON: For Value of Money belonging to Prisoners, taken in charge by the Governor of Lewes Naval Prison - - - - -	-	-	-	2	16	8
6	MARINE DIVISIONAL PAYMASTERS: For Balances standing as Imprest, &c., against them on 30th Sep- tember 1866 - - - - -	193,054	1	4	—		
30	NAVAL AND VICTUALLING CASHIERS, STOREKEEPERS, AND AC- COUNTANTS, HOSPITAL AGENTS, PACKET AGENTS, AND PAY- MASTER OF ADMIRALTY CONTINGENCIES, &c., AT HOME: For Balances standing as Imprests, &c., against them, and Credit Balances on 30th September 1866 - - - - -	1,170,696	18	1	-	11	4
33	NAVAL AND VICTUALLING STOREKEEPERS AND ACCOUNTANTS, AND HOSPITAL INSPECTORS, &c., ABROAD: For Balances as above - - - - -	284,879	11	6	6,206	6	5
28	RECRUITING OFFICERS: For Balances as above - - - - -	6,988	2	6	5	-	-
10	CONSULS' ACCOUNTS: For Balances standing as Imprests, &c., against them on 30th September 1866 - - - - -	275	4	11	—		
16	PAYMASTERS OF COAST GUARD DISTRICTS ON SHORE: For Balances as above - - - - -	205,348	7	1	—		
16	PAYMASTERS OF ROYAL NAVAL RESERVE DRILL SHIPS: For Balances as above - - - - -	29,595	-	6	—		
164	- - - - - Carried forward - - - £.	8,251,927	11	1	659,034	19	5

Number of Accounts.	DESCRIPTION OF ACCOUNTS.	Dr.	Cr.
		£. s. d.	£. s. d.
164	- - - - - Brought forward - - -	8,251,927 11 1	659,084 19 5
449	PAYMASTERS OF HER MAJESTY'S SHIPS AND VESSELS: For Balances standing as Imprests, &c. against them, and Credit Balances on 30th September 1866 - - - - -	675,092 4 6	8,411 11 7
20	MISCELLANEOUS ACCOUNTANTS, &c.: For Balances as above - - - - -	2,164 11 10	- 10 11
1	J. LAMONT, HONG KONG (ON BEHALF OF THE WHAMPOA DOCK COMPANY): For Balance of Amount advanced, 11th February 1864, by way of loan, to assist him in the con- struction of a Dock at Aberdeen, Hong Kong - For Amount of further Advance, 29th March 1866 - - - - -	£. s. d. 5,572 16 - 6,000 - - 11,572 16 -	- -
1	W. JACKSON, CONTRACTOR AT KEYHAM: For Balance remaining unpaid of amount advanced on 31st March 1865, for the purchase of Steam Engines, Plant, &c., upon the works at Keyham, in connexion with Mr. Jackson's Contract of 30th January 1863, to be repaid by instalments - - -	1,250 - -	-
1	PRIVATE INDIVIDUALS (FOR LABOUR PERFORMED AT THE DOCK- YARDS): For Wages of Dockyard Workmen employed on behalf of Private Individuals, in the repair of Vessels, &c., not yet repaid - - -	839 10 9	-
1	TREASURY CHEST ADVANCE ACCOUNT, 1865-66: For Balance due by the Naval Department on account of Advances from the Chests in the Colonies for Naval Services in the Year 1865-66 - - - - -	- - -	24,144 3 10
1	TREASURY CHEST ADVANCE ACCOUNT, 1866-67: For Amount outstanding on the Repayments by the Naval De- partment on account of Advances from the Chests for Naval Services in the Year 1866-67 - - - - -	420,000 - -	- - -
1	TREASURY CHEST ACCOUNT, 1866-67: For Amount of Advances from the Chests on account of Naval Services, as per Advices received for the Year 1866-67, not yet claimed - - - - -	- - -	252,135 5 10
5	TREASURY: For the following Balances, viz.: 1. For Balance due on account of Advances in 1865-66 and 1866- 67, for Magnetic and Meteorological Observations at Green- wich and the Cape of Good Hope - - - - - 2. For Balance remaining of Amount received from the Treasury in the year 1855, to be distributed amongst the Officers and Crew of Her Majesty's Ship "Investigator," for their Services in the Arctic Seas - - - - -	468 4 7 - - - -	- - - 58 2 10
644	- - - - - Carried forward - - - £.	9,363,314 18 9	943,784 14 5

Number of Accounts.	DESCRIPTION OF ACCOUNTS.	Dr.	Cr.
		£. s. d.	£. s. d.
644	- - - - - Brought forward - - -	9,563,314 18 9	943,784 14 5
5	TREASURY—continued.		
	3. For Amount due to the Treasury for value of Stone supplied from the Harbour Works at Portland, to the War Department in January and February 1866 - - - - -	3,003 13 3	
	For Amount due to the Treasury for value of Stone supplied for the Service of New Works, &c., at the Dockyards and Marine Barracks, between March and June 1866 - - - -	467 19 4	
	For Rents of Premises in the neighbourhood of the Harbours of Refuge at Alderney, Dover, and Portland; and pier dues, &c., at Dover, during the Year 1865-66 - - - -	275 18 -	
	Less:—Advances by the Naval Department in 1865-66 and 1866-67, for Works at Harbours of Refuge - - - - -	3,747 10 7 3,022 6 11	
		- - - -	725 3 8
	4. For Balance due on account of Advances in 1863-64 and 1864-65, on account of the Exploration of the River Zambesi	13 4 -	—
	5. For Advances out of Naval Grants on account of the Entertainment of Diplomatic Officers, &c., on board Her Majesty's Ships - - -	40 - -	
	For Lodging and Subsistence Allowance of Officers and Men, and Extra Pay to Men employed in "Pampero," Danish vessel - -	233 19 4	
	For Freight, Salvage, &c., of Treasure; presents to Native Chiefs on the West Coast of Africa: Victualling Distressed British Subjects; Provisions, &c., supplied for the use of Convict Establishments in Western Australia, and Miscellaneous Charges - - - - -	340 4 7 614 3 11	
	Abate:—	£. s. d.	
	Amount transferred for the Entertainment of Diplomatic Officers, &c., on board Her Majesty's Ships, the charges for which are not yet brought to account -	31 - -	
	Amount refunded by Messrs. Burns and McIver, of Liverpool, for freight of Biscuit to Constantinople, for use of Distressed Circassians - - - - -	10 10 -	
		41 10 -	
		572 13 11	—
644	- - - - - Carried forward - - - £.	9,363,900 16 8	944,509 18 1

Number of Accounts.	DESCRIPTION OF ACCOUNTS.	Dr.			Cr.		
		£.	s.	d.	£.	s.	d.
644	- - - - - Brought forward - - -	9,363,900	16	8	944,509	18	1
1	HOME DEPARTMENT (CONVICT SERVICE ACCOUNT):						
	For Balance due for Advances out of Naval Grants on account of the Expense of the Transportation of Convicts in 1865-66 and 1866-67 - - - - -	9,462	12	8	—		
1	SECRETARY OF STATE FOR WAR (MISCELLANEOUS ACCOUNT):						
	For Advances out of Naval Grants on account of the Indian Pay, and Field and Forage Allow- ances, &c. to Marine Officers in China - -	2,567	19	4			
	For Value of Provisions, &c. supplied for the Commissariat Service and Garrisons Abroad in 1865-66 - - - - -	131	13	7			
	For Value of Provisions, Bedding, &c. supplied to Her Majesty's Transports for the Service of Troops on Shore, and the Commissariat Service, in the year 1865-66 - - - - -	807	13	7			
	For House Allowances to the Harbour Master at Devonport, and his Boat's Crew, whose Houses have been appropriated for Army Services -	150	—	—			
	For Construction of House for Harbour Master at Devonport - - - - -	1,391	6	9			
	For Moiety of Expenses in connexion with the Committee on the Venereal Disease, and of Con- tribution to the London Lock Hospital for accommodating Female Patients, &c. - -	2,173	14	—			
	For Lighterage, &c. of Army Stores at Auckland	1,735	4	8			
	For Purchase of Ordnance Stores for Her Ma- jesty's Ships - - - - -	1,071	4	2			
	For Expenses of Stowing Army Salt Meat at Malta Victualling Yard - - - - -	292	9	1			
	For Amount due to the Naval Department paid over to the Army Authorities in 1862 by the Paymaster of the "Victoria" Colonial Steamer -	562	7	6			
	For Advances by the Transport Accountant at Auckland for the passage of General Cameron and suite to England - - - - -	885	—	—			
	For Wages of Dockyard Workmen in the year 1865-66 employed on the Service of the War Department - - - - -	251	9	6			
	For Payments to Contractors for Government Buildings in Vancouver's Island; for Expenses in connexion with the Recovery of Arms, &c. from the wreck of the "Balaclava"; for Hire of Boats at Hong Kong and Shanghai for Army Service; and for numerous other Miscellaneous Charges - - - - -	1,757	4	5			
	Abate,—	£.	s.	d.	13,777	6	7
	Value of Condemned Gunpowder sold to Chilian Government in November 1864 - - - -	203	2	8			
	Amount recovered for Bounty to Marines fraudulently enlisted in the Line, for Arms damaged, lost by neglect, &c., for Demur- rage of Lighters, Sale of War Office Stores &c. &c. - - -	428	11	5			
		631	14	1			
		13,145	12	6			
646	- - - - - Carried forward - - - £.	9,386,509	1	10	944,509	18	1

Number of Accounts.	DESCRIPTION OF ACCOUNTS.	Dr.	Cr.
		£. s. d.	£. s. d.
646	- - - - - Brought forward - - -	9,386,509 1 10	944,509 18 1
1	SECRETARY OF STATE FOR FOREIGN AFFAIRS:		
	For Advances out of Naval Grants on account of the Passages of Consular Officers, &c. - -	£. s. d. 623 - 9	
	For Extra Pay to Marines on Guard at, and Mis- cellaneous Expenses connected with, the Legation at Yokohama - - - - -	606 19 7	
	Abate,—	1,230 - 4	
	Amount transferred for the Passages of Consular Officers, &c., the Charges for which are not yet brought to account - - - - -	617 6 10	
		612 13 6	
1	COLONIAL DEPARTMENT:		
	For Advances out of Naval Grants on account of the Passages, &c. of Officers connected with the Colonial Department in the Colonies - -	716 5 11	
	For Advances on account of the Moiety of the Expenses of Building Dredging Vessels and Mud Pontoons, and constructing Wharf Walls, &c. at Malta Harbour - - - - -	27,125 16 5	
	For Advances out of Naval Grants on account of Conveyance of Stores to Vancouver's Island -	518 1 1	
	For Advances on account of the Value of Stores supplied to Marines at Vancouver's Island -	175 9 2	
	For Conveyance of a Detachment of the 2nd Bat- talion of the 17th Foot from Halifax, Nova Scotia, to Sydney, Cape Breton, and back, in May 1864, in consequence of the threatening attitude of the Mining Population at the latter place - - - - -	500 - -	
	For Conveyance of troops in November 1865 from Charlotte Town to Halifax, Nova Scotia - -	300 - -	
	For Value of Provisions, &c., supplied on account of the Ceylon Government in Lady Quarter 1866 - - - - -	484 1 6	
	For Provisions and Stores supplied to Colonial Steamers; and other Miscellaneous Charges -	319 1 2	
	Abate,—	30,138 15 3	
	Excess of Repayments by the Colonial Authorities on account of the Coast Surveys in pro- gress in Australia over the pro- portion of Expenditure charge- able to the Colonial Govern- ments, as yet brought to account	£. s. d. 38 12 3	
	Amount transferred for the Pas- sages, &c. of Officers connected with the Colonial Department in the Colonies, &c., the Charges for which are not yet brought to account - - - - -	370 15 7	
		409 7 10	
		29,729 7 5	
648	- - - - - Carried forward - - - £.	9,416,851 2 9	944,509 18 1

Number of Accounts.	DESCRIPTION OF ACCOUNTS.	Dr.			Cr.		
		£.	s.	d.	£.	s.	d.
648	- - - - - Brought forward - - -	9,416,851	2	9	944,509	18	1
1	SECRETARY OF STATE FOR INDIA IN COUNCIL:	£.	s.	d.			
	For Advances out of Naval Grants on account of the Hire and Fittings, &c. of Transports and Freight Ships employed in conveying Troops to India; also for supplies of Provisions and Stores for the same, from 1857 to the present time -	66,402	12	4			
	For Advances out of Naval Grants since June 1866, to defray the Expenses of the five Troop Transports, "Malabar," "Jumna," "Euphrates," "Serapis," and "Crocodile," for the East Indian Government, now in course of construction under the superintendence of the Admiralty -	59,978	8	10			
	For Advances of Cash to Officers of the Indian Navy on the China Station, from 1860 to the present time - - - - -	38,055	-	8			
	For Advances out of Naval Grants on account of the Entertainment of Lord Elgin on board the "Feroze," Indian Navy - - - - -	1,346	17	3			
	For Advances out of Naval Grants on account of Repairs executed at Hong Kong to the "Coromandel," "Sydney," and "Tonze," Ships of the Indian Navy - - - - -	400	18	10			
	For Amount of Contribution due from the Indian Government on account of the Indian Relief Services of 1864 and 1865 - - - - -	25,059	6	8			
	For other Miscellaneous Charges - - - - -	85	12	3			
		191,328	16	10			
1	SECRETARY OF STATE FOR WAR (GREENWICH OUT-PENSION ACCOUNT):						
	For Advances on account of Payments for Greenwich Out-Pensions in 1866-67 - - - - -	100,000	-	-			
1	POST OFFICE DEPARTMENT (PACKET SERVICE ACCOUNT):						
	For Advances out of Naval Grants on account of Salaries of Agents, and other Incidental Charges in 1865-66 and 1866-67 - - -	1,658	6	11			
1	POST OFFICE DEPARTMENT (MISCELLANEOUS ACCOUNT):						
	For Advances out of Naval Grants on account of Passages of Officers belonging to the Post Office Department in 1866-67 -	92	9	2			
1	BOARD OF TRADE (MARINE DEPARTMENT):						
	For Advances out of Naval Grants on account of the Supply and Freight, &c. of Lighthouse Stores, and for Expenses incurred on account of the subsistence and care of Distressed British Seamen -	277	4	4			
1	BOARD OF TRADE (ROYAL NAVAL RESERVE ACCOUNT):						
	For Advances out of Naval Grants on account of Expenses incurred for the Royal Naval Reserve in 1866-67.	40,000	-	-			
654	- - - - - Carried forward - - -	9,760,208	-	-	944,509	18	1

Number of Accounts.	DESCRIPTION OF ACCOUNTS.	Dr.		Cr.	
		£.	s. d.	£.	s. d.
654	- - - - - Brought forward - - -	9,750,208	- -	944,509	18 1
1	COMMITTEE OF PRIVY COUNCIL ON EDUCATION: For Advances out of Naval Grants, to meet Expenses in connexion with the School of Naval Architecture at South Kensington in 1865-66 - - - - -	655	19 2	-	-
1	OFFICE OF PUBLIC WORKS IN DUBLIN: For Advances out of Naval Grants, to meet the Expenditure on Coast Guard Buildings in Ireland in 1866-67 - - - -	6,000	- -	-	-
1	AUSTRIAN GOVERNMENT: For Advance out of Naval Grants for repairing the "Kaiser Max," Austrian Frigate at Devonport, in Midsummer Quarter 1865 -	-	16 -	-	-
1	CHINESE GOVERNMENT: For Advance out of Naval Grants on account of Expenses incurred at Hong Kong, in Lady Quarter 1863, for building a Maga- zine for Stores belonging to the Chinese Government on board the Transport "Orient" - - - - -	57	5 10	-	-
1	CHINESE GOVERNMENT (ANGLO-CHINESE FLOTILLA ACCOUNT): For Amount due to the Chinese Government on account of the proceeds of the Sale (received in 1866-67) of Vessels belonging to the late Anglo-Chinese Flotilla, not yet paid over - - -	-	- -	30,007	2 9
1	DANISH GOVERNMENT: For Advances out of Naval Grants on account of the Pay of two Danish Officers serving in Her Majesty's Navy in 1865-66 -	319	- -	-	-
1	DUTCH GOVERNMENT: For Advances out of Naval Grants for expense of attending the "Watergeen," into Harbour at Portsmouth, in Christmas Quarter 1865 - - - - -	-	9 9	-	-
1	EGYPTIAN GOVERNMENT: For Advances out of Naval Grants for the Travelling Expenses of Dockyard Officers inspecting Ships building for the Egyptian Government in 1864-65, and 1865-66 - - - - -	33	10 5	-	-
1	FRENCH GOVERNMENT: For Advances out of Naval Grants on account of Provisions, Coals, and Stores supplied to French Ships of War from 1863-64, to the present time - - - - -	12,038	19 1	-	-
1	HANSEATIC GOVERNMENT: For Advances out of Naval Grants for Wages of Men employed on Relief of the Emigrant Ship "Hertha," and for raising Private Moorings, in 1865-66 - - - - -	23	4 7	-	-
1	ITALIAN GOVERNMENT: For Advances out of Naval Grants for expenses of recovering Anchor of the "Marietta Gatterno," at Devonport, in Lady Quarter 1866 - - - - -	1	16 2	-	-
665	- - - - - Carried forward - - -	9,769,359	1 -	974,517	- 10

Number of Accounts.	DESCRIPTION OF ACCOUNTS.	Dr.			Cr.		
		£.	s.	d.	£.	s.	d.
665	- - - - - Brought forward - - -	9,769,359	1	-	974,517	10	
1	PRUSSIAN GOVERNMENT: For Advances out of Naval Grants for Repairs to Prussian Cor- vette "Nympe" at Devonport, in Michaelmas Quarter 1865 -	3	12	11	--		
1	SPANISH GOVERNMENT: For Advances out of Naval Grants for Repairing Anchor of the "Gerona" at Devonport, in Christmas Quarter 1865 - -	-	14	3	—		
1	TURKISH GOVERNMENT: For Advances out of Naval Grants for Expenses incurred by Officers of Her Majesty's Dockyards, &c., whilst inspecting Ships, &c. Building for the Turkish Government in 1865-66 and 1866-67 - - - - -	280	16	5	—		
1	DONATION WAR BATTALION MONEY TO MARINE BRIGADE IN CHINA: For Balance remaining unpaid out of Amount received from the War Department on account of the difference between Indian and Imperial Pay, and Allowances to Marine Officers, &c. in China - - - - -	-	-	-	492	10	-
1	EAST INDIA WAR BATTALION MONEY: For Balance remaining unpaid out of Amount received from the East Indian Government for Distribution among the Officers and Seamen of Her Majesty's Ships employed in the Naval Brigade in India - - - - -	-	-	-	663	-	1
1	KAHDING PRIZE MONEY ACCOUNT: For Balance remaining unpaid out of the Naval Share of the Booty captured from the Taepings at Kahding by the combined French, Chinese, and British Forces - - - - -	-	-	-	79	7	4
1	CRIMEAN FIELD ALLOWANCE ACCOUNT: For Balance remaining unpaid out of Amount received from the War Department for the Payment of Field Allowance to Marines employed in the Crimea - - - - -	-	-	-	4	5	6
20	OLD STORE AND EXTRA RECEIPT MONEYS ACCOUNT: For Receipts on Account of the Sale of Unserviceable Naval Stores, and for Supplies of Serviceable Naval Stores, &c. to other Depart- ments of Government, paid over Quarterly to the Exchequer -	-	-	-	106,832	4	6
	NET AVAILABLE BALANCE on 30th September 1866 - -	-	-	-	8,687,055	16	4
692		£.	9,769,644	4 7	9,769,644	4 7	

Number of Accounts.	DESCRIPTION OF ACCOUNTS.	AMOUNT.
		£. s. d.
692	- - - - Net available Balance on the 30th September 1866 - - -	8,687,055 16 4
262	As the foregoing Balances include Sums belonging to the Account for the Year 1866-67, the following Statement of the Amount due on the Grants for that Year is given, in order to show the state of the Grants for 1865-66 on the 30th September 1866, when the Account for that Year was closed, viz. :—	
	Grants for Naval Services for the Year 1866-67, per Act 29 & 30 Vict. c. 91, s. 13 - - - £. 10,434,735	£. s. d.
	Grants for Advances for Greenwich Hospital and School, per Act 29 & 30 Vict. c. 91, s. 26 125,367	
		10,560,102 - -
	Deduct,—Net Expenditure for the Year 1866-67, passed to Account up to the 30th September 1866, the Date when the preceding Balances were struck - - - - -	2,060,969 16 8
	Net Amount due on the Grants for 1866-67 - - - - -	8,499,132 3 4
	UNAPPROPRIATED BALANCE of Moneys granted for 1865-66 - - - £.	187,923 13 -
	The same result may be obtained from the Balance Account ended 31st March 1866, viz. :—	
	Net available Balance on Navy Ordinary Grants for 1865-66, on the Books on 31st March 1866 - - - - -	5,019,636 11 3
	Deduct,—Net Expenditure for 1865-66, passed to Account subsequently to the 31st March 1866, when the preceding Balances were struck - - - - -	4,831,712 18 3
954	UNAPPROPRIATED BALANCE of Moneys as above - - - £.	187,923 13 -

(Examined) Charles Vine.

J. Beeby,
Accountant General of the Navy.

N A V Y.

1865-66.

STATEMENT of the SAVINGS and DEFICIENCIES upon the GRANTS for NAVY SERVICES, in the Year ended 31 March 1866; showing all Cases in which the Navy Department has obtained the sanction of the Treasury to Expenditure not provided for in the Grants for that Year; together with Copies of the Representations made to the Treasury by the Board of Admiralty; also the BALANCE SHEET, showing the Ledger Balances on 30 September 1866; &c.

(Presented pursuant to Act 28 & 29 Vict. c. 123, s. 27.)

*Ordered, by The House of Commons, to be Printed,
12 February 1867.*

[Price 10 d.]

NAVY (ARMOUR-CLAD SHIPS AND BATTERIES).

RETURN to an Order of the Honourable The House of Commons,
dated 28 June 1867;—for,

RETURN “of all ARMOUR-CLAD SHIPS and BATTERIES Built by Contract
for HER MAJESTY’S SERVICE since November 1855; giving,—

1st. Amount of Original Contract in Price per Ton, and Total Contract Amount;

2nd. Total Amount actually Paid under the following Heads :—

1. Payment of Contract Instalments by Cash, and by Value of Stores supplied and Works performed by Admiralty, and chargeable to the Contractors;
2. Payment for Extras previously authorised;
3. Payments for Extras not previously authorised, but allowed as Extra to the Contract;
4. Exceptional Payments for Compensation or otherwise, explaining any Amount not being for Compensation.”

Admiralty, }
12 August 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

(Mr. Samuda.)

Ordered, by The House of Commons, to be Printed,
13 August 1867.

RETURN of all ARMOUR-CLAD SHIPS and BATTERIES Built by Contract for HER MAJESTY'S SERVICE since November 1855; giving,—1st. Amount of Original Contract in Price per Ton, and Total Contract Amount: 2d. Total Amount actually Paid under the following Heads:—1. Payment of Contract Instalments by Cash, and by Value of Stores supplied, and Works performed by Admiralty and chargeable to the Contractors: 2. Payment for Extras previously authorised: 3. Payment for Extras not previously authorised, but allowed as Extra to the Contract: 4. Exceptional Payments for Compensation, or otherwise, explaining any Amount not being for Compensation.

NAME OF VESSEL.	Tonnage as Designed.	Original Contract Price per Ton for Hull.	Total Original Contract Price for Hull.	Total Amount Paid in connection with Contract.	Total Amount actually Paid under the Undermentioned Heads.				Exceptional Payment for Compensation, or otherwise, explaining any Amount not being for Compensation.	£. s. d.
					Payment of Contract Instalments by Cash and by Value of Stores supplied, and Works Performed by Admiralty and Chargeable to the Contractors.	Payment for Extras previously Authorised.	Payment for Extras not previously Authorised, but Allowed as Extra to the Contract.			
Warrior - - -	Tons. 6,035 ²⁴	£. s. d. 31 10 -	£. s. d. 190,225 2 11	£. s. d. 255,532 2 3	£. s. d. 190,225 3 6	£. s. d. 6,164 16 9	£. s. d. 14,689 - - No further separate payment on account of extra works was made, and anything that might have been due for such works was included in the sum paid to the contractors to cover the actual cost of the ship, and to allow them a profit of 12,000 <i>l.</i>	To reimburse contractors' actual cost of ship, and to allow 12,000 <i>l.</i> profit thereon - - - - Value of works performed for, and of materials supplied to contractors from Her Majesty's yards, the expenses of which were chargeable against the contract price of the ship, but were remitted by the Admiralty to the contractors - - - - TOTAL - - - £.	£. s. d. 41,420 16 9 3,082 5 3 44,503 2 -	
Black Prince - - -	6,038 ²⁴	37 5 -	224,943 15 10	255,845 5 2	224,943 15 10	5,305 - -	- - -	Compensation to Messrs. Napier - Use of loft at Glasgow by men sent to navigate ship to Portsmouth - - Value of works performed for, and of materials supplied to contractors from Her Majesty's yards, the expenses of which were chargeable against the contract price of the ship, but were remitted by the Admiralty to the contractors - - - -	14,977 - - 281 12 - 10,332 17 4 TOTAL - - - £.	

RETURN RELATING TO ARMOUR-CLAD SHIPS AND BATTERIES.

RETURN of all Armour-Clad Ships and Batteries Built by Contract for Her Majesty's Service, since November 1855, &c.—*continued*.

Total Amount actually Paid under the Undermentioned Heads.										
NAME OF VESSEL.	Tonnage as Designed.	Original Contract Price per Ton for Hull.	Total Original Contract Price for Hull.	Total Amount Paid in connection with Contract.	Payment of Contract Instalments by Cash and by Value of Stores supplied, and Works Performed by Admiralty and Chargeable to the Contractors.	Payment for Extras previously Authorised.	Payment for Extras not previously Authorised, but Allowed as Extra to the Contract.	Exceptional Payment for Compensation, or otherwise, explaining any Amount not being for Compensation.		
Agincourt	6,620½	£. s. d. 49 15 -	£. s. d. 329,393 3 2	£. s. d. 353,273 16 4	£. s. d. 329,393 6 2	£. s. d. 18,971 10 -	£. s. d. 3,913 - -	Sample armour plates fired at, at Ports- mouth - - - - -	£. s. d. 929 10 2	
								Testing armour plate bolts - - - - -	71 10 -	
								TOTAL - - - - -	1,001 - 2	
Minotaur	6,620½	48 10 -	321,116 19 -	346,634 5 2	321,116 18 4	17,668 15 -	7,470 15 -	Sample armour plates fired at, at Ports- mouth - - - - -	367 12 5	
								Pilotage from Victoria Docks - - - - -	10 4 5	
								TOTAL - - - - -	377 16 10	
Northumberland	6,620½	44 12 -	295,295 3 6	Messrs. Mare & Co., the Contractors, failing to fulfil their contract, a new one was entered into with the Millwall Iron Works and Ship Building Company.	321,116 19 -	18,977 10 6	4,434 - -	Value of works performed for, and of materials supplied to Contractors from Her Majesty's yards, the ex- penses of which were chargeable against the contract price of the ship, but were remitted by the Ad- miralty to the Contractors - - -	2,332 8 7	
		48 10 -	321,116 19 -	353,276 7 10				Total expenses incurred by Admiralty in as- sisting Company to launch the ship - 18,666 16 10		
								Deducted by Admiralty from 16th instalment on account thereof - 8,000 - -	10,666 16 10	
								Sample armour plates fired at, at Ports- mouth - - - - -	597 16 6	
								Paid Victoria and St. Katharine's Docks Companies for dock dues - -	150 17 5	
								TOTAL - - - - -	13,747 18 4	

Prince Albert	-	2,529 ³⁴	44 15 - Exclusive of turrets, which were provided in one of Her Majesty's dockyards.	113,187 - 7	121,836 10 6	113,187 - 6	8,514 - -	- - -	Sample armour plates fired at, at Ports- mouth - - - - -	135 10 -
Viper	-	737 ³⁴	49 10 -	36,497 16 5	37,069 - 2	36,497 10 5	442 17 6	556 15 -	Sample armour plates fired at, at Ports- mouth - - - - -	171 11 3
Vixen	-	737 ³⁴	52 15 -	36,894 2 11	40,375 6 4	36,894 2 11	527 10 -	765 - -	Sample armour plates fired at, at Ports- mouth - - - - -	188 13 5
Waterwitch	-	777 ³⁴	43 - -	37,334 6 -	39,593 4 9	37,334 6 -	1,905 6 -	- - -	Sample armour plates fired at, at Ports- mouth - - - - - Paid Mr. Ruthven for preparing draw- ings of hydraulic propeller - - -	253 12 9 100 - - 253 12 9
Erebus	-	1,954	36 - - - If delivered in Thames on 15th April 1856; but if not so delivered, a deduction of 10 s. per ton per diem for every day beyond that date up to 1st May 1856, to be made therefrom. The vessel was not delivered until 24th April 1856, therefore the contract price was— 32 - - - 62,528 - -	70,344 - -	70,343 18 11	62,528 - -	- - -	- - -	Sum which had lapsed owing to non- delivery of vessel on 15th April 1856, but which was notwithstand- ing paid to the contractors - - -	7,815 18 11
Terror	-	1,954	26 - - - If delivered in Thames on 1st May 1856; but if delivered before that date con- tractors to be paid an additional 10 s. per ton per diem, for every day ship may be delivered before that date, between that date and 15th April 1856. The vessel was delivered on 29th April 1856, therefore the contract price was— 27 - - - 52,758 - -	50,804 - -	65,458 19 3	52,758 - -	- - -	- - -	Payment made to place the contractors on the same relative footing as the contractors for the "Erebus" and "Thunderbolt," - - - - -	12,700 19 3
Thunderbolt	-	1,954	25 - - - If delivered on 15th April 1856; but if not so delivered a deduction of 10 s. per ton per diem for every day beyond that date up to 1st May 1856, to be made therefrom. The vessel was not delivered until 30th April 1856, therefore the contract price was— 28 - - - 54,712 - -	68,390 - -	68,389 19 9	54,712 - -	- - -	- - -	Sum which had lapsed owing to non- delivery of vessel on 15th April 1856, but which was notwithstand- ing paid to the contractors - - -	13,677 19 9

FLOATING BATTERIES:

Note.—No charge appears against some of the ships for the value of armour plates tested, in consequence of the fact that prior to 7th January 1864, such expenses were charged to the Vote for Experiments. Since that time, however, each plate which stands the test has been charged to the ship for which it has been tested.

No charge for overseer's subsistence and travelling expenses while inspecting the construction of ships building by contract has been included in this Return.

Controller's Department, Admiralty,
10 August 1867.

N A V Y
(ARMOUR-CLAD SHIPS AND BATTERIES).

RETURN of all Armour-Clad Ships and Batteries Built by Contract for Her Majesty's Service since November 1855; giving the Amount of original Contract in Price per Ton, and Total Contract Amount; &c.

(Mr. Samuda.)

Ordered, by The House of Commons, to be Printed,
13 August 1867.

NAVY (BOYS AND SEAMEN).

RETURN to an Order of the Honourable The House of Commons,
dated 8 July 1867 ;—for,

RETURNS “ of the actual Number of BOYS in the TRAINING SHIPS during each Quarter in the Three last Years:”

“ Of the actual Number Discharged during the same Periods from the TRAINING SHIPS into SEA-GOING SHIPS:”

“ Of the actual Number DISCHARGED or who DIED during the same Periods:”

“ Of the actual Number entered in the NAVY otherwise than through the Training Ships during the same Periods:”

“ Of the actual Number rated as ORDINARY SEAMEN during same Periods:”

“ And, of the actual WASTE of SEAMEN during these Periods from Death, Desertion, Discharge, and End of Service.”

Admiralty, }
15 August 1867.]

JOHN HENRY BRIGGS,
Chief Clerk.

RETURN of the actual Number of BOYS in the TRAINING SHIPS, &c., as specified below.

	1864-65.				1865-66.				1866-67.			
	Quarter ended				Quarter ended				Quarter ended			
	30th June.	30th Sept.	31st Dec.	31st March.	30th June.	30th Sept.	31st Dec.	31st March.	30th June.	30th Sept.	31st Dec.	31st March.
(1.) Actual Number of Boys in the Training Ships during each quarter in the last three years. (Based upon the Account of the Monthly Average of Numbers borne)	2,605	2,561	2,544	2,374	2,001	2,196	2,365	2,365	2,694	2,833	2,748	2,967
	Average - - 2,521				Average - - 2,254				Average - - 2,811			
(2.) Actual Number discharged during the same periods from the Training Ships into Sea-going Ships	319	353	285	871	474	308	416	398	430	299	619	551
	1,828				1,596				1,899			
(3.) Actual Number discharged or who died during the same periods	111	79	66	82	52	58	58	45	54	93	96	55
	338				213				298			
* (4.) Actual Number entered in the Navy otherwise than through the Training Ships during the same periods	Year ended 31st March. 126				Year ended 31st March. 126				Year ended 31st March. 95			
* (5.) Actual Number rated as ordinary seamen during the same periods	1,899				1,470				2,399			
* (6.) Actual Waste of Seamen during these periods from death, desertion, discharge, and end of service.	2,124 } 5,328 3,204 }				2,007 } 4,369 2,362 }				1,936 } 4,077 2,141 }			
† From Casualties ‡ Paid off to the Shore.												
(The Numbers given are for men of the <i>pure seamen</i> class only.)												

* The numbers during each year only given, as the numbers for each quarter are not distinguished in the accounts in office.
† The head “ From Casualties ” includes deaths, invalidings, desertions, discharges with disgrace, and discharges by purchase, and on pension.
‡ The head “ Paid off to the Shore ” includes all men discharged on their ships being paid off, or from any other causes than those enumerated above.

Admiralty, }
16 December 1867.]

J. Beeby,
Accountant General of the Navy.

NAVY (BOYS AND SEAMEN).

RETURN of the actual Number of Boys in the TRAINING SHIPS during each Quarter in the Three last Years; of the actual Number Discharged during the same Periods from the TRAINING SHIPS into SEA-GOING SHIPS; of the actual Number Discharged or who Died during the same Periods; of the actual Number Entered in the NAVY otherwise than through the Training Ships during the same Periods; &c.

(*Mr. Hanbury-Tracy.*)

*Ordered, by The House of Commons, to be Printed,
16 August 1867.*

287

CHAIN CABLES AND ANCHORS.

RETURN to an Order of the Honourable The House of Commons,
dated 14 August 1867 ;—for,

RETURN “of the COST of CABLES, ANCHORS, and MOORING CHAINS,
Purchased for the INDIAN DEPARTMENT since January 1865 :”

“And, COPY of any CONTRACT, SPECIFICATION, or SCHEDULE of PRICES,
stating whether Public Competition was invited, and Tenders duly Adver-
tized for in the usual Manner.”

India Office, Military Department, }
15 August 1867.

T. T. PEARS, Major General,
Military Secretary.

CHAIN CABLES, ANCHORS, and MOORINGS, Purchased for the INDIAN DEPARTMENT
since January 1865.

YEAR.	Cost of		
	Chain Cables.	Anchors.	Moorings (Anchor and Screw).
	£. s. d.	£. s. d.	£. s. d.
1865 - - - - -	- - -	- - -	66,481 14 9
1866 - - - - -	4,412 11 3	1,902 7 1	22,057 2 6
1867 - - - - -	1,003 16 7	- - -	1,351 5 1
TOTAL - - - £.	5,416 7 10	1,902 7 1	89,890 2 4

N.B.—No contracts, specifications, or schedules of prices, regarding such supplies are in
existence, and public competition was not invited.

CHAIN CABLES AND ANCHORS.

RETURN of the COST of CABLES, ANCHORS,
and MOORING CHAINS, Purchased for the
INDIAN DEPARTMENT since January 1865;
&c.

(*Mr. Laird.*)

*Ordered, by The House of Commons, to be Printed,
16 August 1867.*

NAVY (CHANNEL FLEET).

RETURN to an Order of the Honourable The House of Commons,
dated 26 March 1867;—for,

COPY “of Admiral YELVERTON and Admiral WARDEN’S REPORT on the
TRIALS of the CHANNEL FLEET in 1866; with the OBSERVATIONS of the
COMPTROLLER of the NAVY thereon.”

Admiralty, }
28 March 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

(No. 146.—52 Enclosures.)

LETTER from Rear Admiral *Yelverton* to the Secretary of the Admiralty; with
the REPORT on the late EXPERIMENTAL CRUISE of the CHANNEL SQUADRON.

Sir,

“Caledonia,” Portland, 10 November 1866.

IN pursuance of the instructions from the Lords Commissioners of the
Admiralty, dated the 11th September last (M.), I have the honour to transmit
for their Lordships’ information a report of the trials and experiments made in
steaming, sailing, and general manœuvring of the squadron placed under my
orders for that purpose, between the 20th September and 1st November last:

I have, &c.
(signed) *H. Yelverton*,
Rear Admiral Commanding.

The Secretary of the Admiralty,
Whitehall.

REPORT on the late EXPERIMENTAL CRUISE of the CHANNEL SQUADRON, under
the orders of Rear Admiral *Hastings R. Yelverton*, C.B., between the 20th
September and the 1st November 1866.

1. ACTING up to the spirit of their Lordships’ instructions of the 11th September 1866, I left Portland Roads on the 20th September with the ships named in the margin, and took every opportunity of trying them to their utmost, always placing them in positions as to wind and sea most likely to test their capabilities as sea-boats, without much regard to the safety of their spars, or the risk of shipping far more water than under ordinary circumstances ships of war would be exposed to.

“Caledonia.”
“Lord Clyde.”
“Bellerophon.”
“Achilles.”
“Hector.”
“Pallas.”
“Ocean.”
“Wivern.”
“Research.”
“Helicon.”

2. On leaving Portland, September 20th, the wind was fresh from the westward, and had been blowing hard from that quarter for several days; I therefore found a very heavy sea and swell to the westward of the Lizard, so much so, that I decided not to attempt to beat against it, but try the merits of the ships, simply as steamers proceeding under adverse circumstances to a certain point, maintaining a given moderate speed, and preserving, as near as possible, their exact formation in order of steaming, so essentially necessary for the performance of such steam tactics as might be required, had we been in search of an enemy.

3. The “Pallas” and “Research” were the only two ships that could not keep company with the squadron; the “Pallas” appeared to plunge heavily, and carried away her jib-boom, but took her place in the squadron the following morning; the “Research,” from her very small steam power, was out of sight at sunset, and put into Plymouth to fill up with coal.

4. On the 23rd we reached the prescribed rendezvous in lat. 48 N. and long. 12 W., when steaming ceased for a while, and the trials of sailing began.

5. I may here mention that the cruising ground in the Atlantic selected for our trials was, for the object of meeting very bad weather, somewhat too far to the southward, as from the fall of the barometer, the state of the sea, and general appearance of the weather, I have no doubt that on three occasions heavy gales passed between us and Cape Clear, affording on two occasions only, proof of their strength by the share we got of them.

6. On both these occasions, I was able to judge of the performance of the squadron, blowing hard and with a heavy sea, and have no hesitation in saying that under all the ordinary circumstances of bad weather in the Atlantic, I see no reason to apprehend that the ships of this squadron would make worse weather of it than any of our line-of-battle ships. I must, however, make two exceptions to this, namely, the "Hector" and "Wivern," neither of which are, in my opinion, in their present condition, safe in bad weather; the "Hector," from the difficulty (if not impossibility) of getting rid of the water she would be certain to ship, if caught in a cross sea, caused by a sudden shift of wind; and the "Wivern," from being so low in the water, that with the every day Atlantic swell only, she is compelled to be battened down if not head on to it, and even then the sea breaks over her deck in a way that renders it a service of danger for the men to pass along it. On reaching the cruising ground, she was soon short of coal, and I was obliged to send her to Bantry to fill up; but the experience I had of her performance up to that time, convinced me of her unfitness to keep the sea, and I ordered her to remain at Bantry until the end of the cruise, when she joined me, having had to put back on one occasion in the face of a strong south-easter. I was subsequently informed by Captain Burgoyne, that on the occasion of steaming down channel, this vessel had two of her fires partly extinguished through shipping a heavy sea, which circumstance has already been reported to their Lordships. The "Wivern" does little under sail, and is totally unfit for the duties of a sea-going vessel, but she is well adapted for coast defence.

7. All the points to which their Lordships were pleased to direct my attention have received the most careful consideration, and have been subjected to such experiments as the state of the weather and other circumstances would admit.

8. A tabular form, annexed hereto, will show at once a summary of our sailing trials. Enclosure No. 3 will give the same in detail.

SUMMARY of TRIALS under SAIL, between 24th September and 20th October 1866.

Date.	Nature of Trial.	Wind.		Under what Sail.	ORDER OF PRECEDENCE.									
		Direction.	Force.											
24 Sept. -	Wind abeam - -	W. S. W.	5-7	Port studding sails	Pallas -	Achilles -	Bellerophon	Hector -	Lord Clyde	Caledonia	—	—		
25 Sept. -	On a wind - -	West -	6	All plain sail -	ditto -	ditto -	Ocean -	ditto -	Caledonia	Bellerophon	Lord Clyde	—		
1 Oct. -	Wind on port quarter.	S. W. by S.	4	Port studding sails	ditto -	Research -	Bellerophon	Achilles -	Hector -	Lord Clyde	Caledonia	—		
5 .. -	Wind on starboard quarter.	East -	3	Starboard studding sails.	Research -	Pallas -	ditto -	Hector -	Caledonia	ditto -	Achilles -	—		
7 .. -	Wind on starboard quarter.	E. S. E.	4	All plain sail (no studding sails).	Pallas -	Research -	Ocean -	ditto -	Bellerophon	Achilles -	Lord Clyde	Caledonia		
9 .. -	On a wind - -	East -	3-5	All plain sail -	ditto -	Hector -	Achilles -	Bellerophon	Ocean -	Lord Clyde	Caledonia	—		
10 .. -	- ditto - -	E. N. E.	3	- ditto - -	Bellerophon	Ocean -	Hector -	Pallas -	Lord Clyde	Caledonia	Achilles -	—		
11 .. -	- ditto - -	E. N. E.	3-5	- ditto - -	Pallas -	Bellerophon	Achilles -	Hector -	Ocean -	ditto -	Lord Clyde	—		
14 .. -	Wind on starboard quarter.	N. E. -	2-4	- ditto - -	ditto -	Hector -	Bellerophon	Achilles -	ditto -	ditto -	ditto -	—		
15 .. -	Wind right aft -	S. by E.	4-5	All possible sail -	ditto -	Ocean -	Achilles -	Lord Clyde	Bellerophon	ditto -	Hector -	—		
17 .. -	Wind abeam - -	S. S. W.	3	All plain sail -	Bellerophon	Achilles -	Hector -	Pallas -	Ocean -	ditto -	—	—		
20 .. -	Wind on starboard quarter.	S. by E.	6	Starboard studding sails.	Pallas -	ditto -	Bellerophon	Hector -	Lord Clyde	ditto -	—	—		

"Hector" is not supplied with studding sails.

17th October "Lord Clyde" was thrown out of this trial in consequence of a man falling overboard from her.

20th October "Ocean" parted company.

9. It thus appears that out of twelve trials of sailing, the "Pallas" has been "first" nine times, and "second" once.

The "Research," owing to her absence from the squadron, had but three trials, but she was "first" on one occasion, and "second" twice. The "Bellerophon" was "first" on two occasions, and "second" once. The "Achilles" was never first, but "second" on four occasions. The "Hector" never first, but took a good second place on two occasions. The "Ocean" the same; never first, but twice second. The "Lord Clyde" never took a higher place than fourth, but stands above the "Caledonia."

10. The "Pallas," on the whole, has proved herself to be the best sailer of the squadron, and decidedly the most weatherly ship. She has missed stays at times when she ought to have gone round, but there is no doubt about her being a thorough good sailing ship.

11. The above remarks apply to sailing only, and are quite irrespective of stability, general handiness, and capability of keeping company with a fleet under sail. All the ships work fairly, in the general acceptation of the term, but one and all are long and uncertain in wearing. Such is the extent to which this most unaccountable and serious defect goes, that a small amount of steam must always be kept handy to ensure the prompt and certain performance of the simplest manœuvre of a fleet.

12. The following observations apply to the ships individually, and will give some idea of their merits and deficiencies.

THE "ACHILLES."

13. This remarkable ship, so grand and imposing in appearance, will, no doubt (when her masts are properly placed), realise all that has been expected of her as a sailing ship. As a fast and powerful steamer, she takes her place in the highest rank, and combines sailing, steaming, and fighting qualities such as none of the others possess. Her power of going to windward in a breeze when her propeller is disconnected is astonishing, and her stability very great. In running before the wind she does not accomplish what I expected of her, but it is hardly fair to judge of the sailing qualities of a ship with her foremast placed where it now is. When under steam in the trough of a heavy Atlantic swell, her rolling was trifling compared with that of all the other ships of the squadron. On the 17th October, when the "Lord Clyde" was rolling 26 degrees, and the "Caledonia" 28 degrees, "Achilles" was only rolling 12 degrees. Again, on the 15th October, "Caledonia" was rolling 14 degrees, "Lord Clyde" 10½ degrees, and "Achilles" only two degrees.

For special service, or a long voyage where a quick and certain passage is the object, the "Achilles" is far superior to any of our finest frigates; and from what I have seen of her in blowing weather, I have no hesitation in saying that she is a safe and good sea boat.

14. We must not, however, lose sight of the fact, that, with all her good qualities, the "Achilles" is, from her great length, most difficult to handle; and this defect in action, more especially if engaged with a turret-ship, might be her ruin.

It is, perhaps, going beyond the bounds of what is probable, but I feel certain that this ship might, and probably would, have to go out of action to turn round, thus exposing herself, in almost a defenceless position, to the fire of more than one of the enemy's ships. In the full speed trial of steam she beat the whole squadron considerably.

THE "BELLEROPHON."

15. I consider this ship to be a very successful specimen of our new ships; she is weatherly both in light and strong winds, and proved herself in all the sailing trials superior to the "Lord Clyde," "Hector," "Ocean," and "Caledonia." When placed in a heavy swell on the broadside, whether under steam or sail, her rolling was less than the above ships, not exceeding 5 degrees on the 15th October, nor 13 degrees on the 17th. Her pitching is deep, more so than the "Lord Clyde," but Captain Tatham describes it as easy. I cannot call the

"Bellerophon" a handy ship, for she possesses the defect common to all iron-clads, viz., that she will not pay off with certainty in spite of her after-yards being square, and helm up; and she is very doubtful in stays, even under the most favourable circumstances of wind and sea, having observed her miss stays three times on one occasion, and at length obliged to wear. This I attribute to the balance rudder, which may be well suited to a screw steamer, but seems to have a tendency to stop the ship's way too suddenly under sail, and she then refuses to come head to wind. Whatever may be the merits of the balance rudder, it has the great defect of offering a target of very large dimensions. The captain of the gun who would fail (at moderate range) to hit it when the "Bellerophon" pitches must be a bad shot. Under all the circumstances of steaming, I think the "Bellerophon" ranks below the "Lord Clyde," and on a par with the "Ocean" and "Caledonia." In this respect I was disappointed, for I expected much greater speed. The plan of carrying water off her decks by a hollow iron watercourse, fitted close to the waterways, is admirable, and worthy of adoption in all iron-clads.

The steel topmasts and yards also appear to answer most satisfactorily.

THE "LORD CLYDE."

16. I cannot say much in favour of the "Lord Clyde" in point of sailing, for she was never first; but she is handy in manœuvring, and she has never missed stays during the cruise. Her rolling is fully equal to the "Ocean" and "Caledonia," and she pitches considerably, but easily. In the full speed trial under steam she was second, beating "Pallas," "Bellerophon," "Caledonia," "Ocean," and "Hector." In sailing, I can only put her on a par with "Ocean" and "Caledonia."

THE "PALLAS."

17. On all occasions of trial of sailing, whether on a wind or going free, the "Pallas" proved herself far superior to the rest of the squadron. Her power of going to windward is extraordinary. She appears to feel her canvas more than any of the other ships, and seldom refuses to come round. Her pitching is heavy, and her rolling, when placed in the trough of the sea or swell, is very great; but she makes good weather of it; and on September 26th, when rolling from 12 degrees to 18 degrees, fired at her target, under difficulties, without shipping much water. On the trial of full speed, the "Pallas" took the third place, and kept it well. She is admirably adapted for the duty of a look-out frigate attached to a squadron of iron-clads, both from her good sailing and small consumption of coal.

18. I may safely class her, in point of sailing, with some of our good 36-gun frigates of other days.

THE "HECTOR."

19. I can hardly realise to myself that the "Hector" of to-day is the same vessel so condemned by general opinion on former occasions. Such, however, has been the result of removing all the weights from the extremities, that she has proved herself in this cruise a fast sea-boat and a good sailer, compared with the "Lord Clyde," "Ocean," and "Caledonia," taking, as she did on two occasions, the second place. She rolls heavily, and pitches equally so; and on firing at a target in a seaway on September 20th, she shipped an immense amount of water through her ports, which she had much difficulty in getting rid of, owing to the small size of her sluice-pipe.

20. Until some means are provided for the "Hector" to get rid of the water, she is certain to ship, more especially if she had to run in a heavy gale; I cannot consider her as a safe ship.

"OCEAN" and "CALEDONIA."

These two ships are so much alike that I will put them together, and do not hesitate for a moment in recommending that the number of this class of vessel be doubled,

doubled, by the conversion of some more of the now useless line-of-battle ships into vessels of this description, stout and unsightly engines of war as they are, still, for war purposes, far superior to any line-of-battle ship, and fully answer the purpose for which they were intended.

22. In sailing, the "Ocean" shows a decided superiority over the "Caledonia," owing, no doubt, to a larger spread of canvas, and possibly to the absence of a poop and forecastle.

Neither are particularly handy under sail. They are doubtful in wearing, but almost always certain to stay, and rise well to the sea, showing an equal degree of buoyancy.

23. As ocean steamers they are quite equal in speed to the 800 horse-power line-of-battle ships, but not so as regards their sailing qualities. As serviceable and cheap iron-clads for line-of-battle and hard fighting in a moderate sea, my experience leads me to the conclusion that they are most efficient ships of war.

In steaming full speed, the "Bellerophon," "Caledonia," and "Ocean" were nearly alike.

THE "RESEARCH."

24. This vessel has been very much improved by the addition of an upper deck, which affords protection to the men, and saves the ship from the risk of shipping far more water than would be safe.

As a steamer, the "Research" is unequal to the performance of much work, and from the very small amount of coal she stores is almost entirely dependant on her sails.

She sails well at all times, both when close-hauled and going free.

On one occasion of trial of sailing, she took the first place, and was twice second; but she was not with us all the time.

She berths her men comfortably, is well ventilated, and her battery is roomy. It may be safely said that she answers the purpose for which she was built.

"THE WIVERN."

25. This vessel could never have been intended as a cruising or sea-going ship, for although she is buoyant and rises to the sea, yet from her being so very low in the water it rushes up her sides over all, and when broadside to the sea it is impossible to move about on her decks without the risk of being washed overboard. At sea she is almost always battened down, to the exclusion of air in the engine room and stoke hole.

Under sail she does very little, and her stowage of coal is very limited.

If the "Wivern" had to cross the Atlantic, I would suggest that she be fitted with a fore and aft bridge, like the "Miantonomah," and, like that vessel, be escorted by a powerful steamer.

26. Their Lordships were pleased to direct by their letter (S.) of 8th September, my attention to the performance of vessels fitted with two-bladed screws, and to observe the difference between their performance under steam and sail, with those driven by four-bladed screws. No doubt the "Pallas," "Hector," "Research," and "Bellerophon," with two-bladed screws, owe a great deal of their good sailing to the absence of the two blades across the line of keel, acting as they do like a toggle on the ship; still, as steamers, it is a question for their Lordships' decision, whether the advantage under sail of the two-bladed screw over the four-bladed one is yet to be considered.

27. If the vessels forming this squadron are to be looked on essentially for war purposes, and fight and move more by steam than sail, I am clearly of opinion that the two-bladed screw, with all its advantages under sail, is inferior to the four-bladed one.

28. It must be obvious to all who have witnessed the difference of the two in steaming against wind and sea, that the four blades have a decided advantage, not only in diminishing the amount of slip, but in lessening, to a great degree, the violent jump and strain in the whole of the stern framing. With four

blades the force is more equally distributed, from its being conveyed through four threads instead of two, tending to greater regularity in the engine stroke, causing less disturbance of the waters, consequently less vibration, and diminishing by one-fourth the strain on each blade.

Experience convinces me that the four-bladed screw is the best for iron-clads.

29. I cannot recommend that larger masts and yards be placed in the "Caledonia" and "Ocean" class, or indeed in any of the ships of this squadron, for most assuredly their steaming qualities would diminish in proportion, and steam, which is their principal power, would be sacrificed to a doubtful issue as regards sailing.

30. Whatever our predilections may be in favour of sailing-ships, we must not forget the specific and warlike purpose for which these vessels were built, not for circumnavigation, most assuredly, but for contending, on fairly equal terms with the similar construction of our neighbours, such as the iron-clads of France and Italy, of which I have seen a great deal during the last three years in the Mediterranean.

31. It is not fair to expect an iron-clad to be as good a cruiser as an ordinary ship, but if she can keep her position under sail off an enemy's port, without having recourse to steam, and make the best of such weather as she will there find; if her powers of offence and defence in action are equal with what she will meet with on the high seas, and she carries a substantial armament, well mounted, and well out of water; all that could reasonably be expected of her as a cruiser is gained, and we must be content with a good steamer and a stout fighting ship, to the exclusion of a fast sailing one.

32. I shall here conclude the general remarks and observations on the sailing, steaming, and manœuvring of the respective ships, and proceed to answer, from my own observations, the questions to which their Lordships directed my particular attention in their letter of instructions.

33. First, as to the performance of the ships in a sea way. The "Achilles," from her size and length, shows far more stability and buoyancy in a sea way than any other ship of the squadron; her rolling never exceeded 16 degrees but on one occasion, when she rolled 21 degrees, and her pitching is trifling. The "Bellerophon" comes next for stability and buoyancy. All the others roll deeply and quickly, averaging about 10 oscillations per minute, and one and all rise to the sea in a satisfactory manner.

The three following examples will give some idea of the comparative rolling of the ships, exposed as they were to a very heavy swell and sea on each occasion:—

				Oct. 14.	Oct. 15.	Oct. 17.
				Degrees.	Degrees.	Degrees.
Extreme rolling recorded by signal.	"Caledonia"	-	-	15	14	28
	"Lord Clyde"	-	-	12	10½	26
	"Bellerophon"	-	-	5	5	10
	"Achilles"	-	-	2	2	16
	"Hector"	-	-	9	5	20
	"Pallas"	-	-	9	11	32
	"Ocean"	-	-	10	7	26

35. I may here observe, that the "Caledonia's" excessive rolling, as compared with her sister ship the "Ocean," may be in a great measure attributed to her having no bilge pieces.

36. Secondly. As to the capabilities of the respective ships for fighting their guns.

37. Gun-

37. Gun-drill took place almost daily, and target practice on three occasions, when, from either wind or swell, there was a good deal of motion.

38. The power of working the guns in a heavy sea-way, and also firing at a target, was only carried out on one occasion, viz., 26th September, when, with a view of testing how far the ships placed broadside on to the sea would be able to open their ports and take advantage of the few opportunities of seeing their targets that would offer, I ordered 15 shot to be fired at them. I was fully aware of the risk all the ships ran of shipping a large amount of water, for the sea at the time was such that no wooden frigate even would have ventured to open her main-deck ports; but it was an experiment, and, as such, attended with some success, for five guns in each ship were cast loose and fired their three rounds ("Bellerophon" excepted, which fired only two shot), not without difficulty, and shipping a considerable quantity of water, to the destruction of some of the cartridges in the guns.

39. I may here observe that the "Caledonia" was rolling 25 degrees in the trough of the sea, and about 10 degrees or 12 degrees when head to it.

The "Achilles" appeared to feel it far less than any of the others, and therefore made better practice, though on this occasion she rolled from 15 degrees to 18 degrees.

40. I do not think that on any future occasion I would venture to open a port or cast a gun loose in any of these ships rolling more than 12 degrees or 15 degrees, for beyond that the practice would be very doubtful, and the certainty of shipping water very great.

41. The turret system of arming a ship would have had a great triumph on this occasion, for there is no doubt that a sea-going turret ship, say 12 or 14 feet out of water, would have fought her guns without the slightest difficulty, and have fired easily six shot to every one from our broadside ships. I do not here allude to the "Wivern," for the sea would have washed into the ports of her turrets and swamped everything inside.

Placed as the squadron was on the 26th September, a good turret ship would have been a most formidable adversary, and have done us serious injury.

42. I consider all the ships are fully capable of carrying the revised armament now contemplated for them.

43. With two exceptions, there have been no complaints from any of the ships of the squadron respecting gun-carriages and gear; these exceptions come from the "Lord Clyde" and "Research," both of which vessels draw attention to the inefficient appliances for running in and out, and transporting guns; and I beg to refer their Lordships to Captain Dew and Commander Scott's reports respectively on this subject. I also consider Captain Connolly's suggestion for controlling guns by means of pauls to be well worthy of consideration.

44. Thirdly. How the ships perform evolutions under sail.

So far as the evolutions of a fleet go, I have no hesitation in saying that all the ships of the squadron would require steam to ensure a prompt and certain performance of them, and not unfrequently to make them keep station.

45. The effect of the propeller, connected and disconnected, has been well tried, and clearly proves that the disconnected propeller, once in motion, adds to the speed of some ships 1 knot, and to others $1\frac{1}{2}$ knots per hour, but the speed at which the ship's sailing sets the propeller in motion, varies. For instance, the "Achilles" must be going 5 knots, "Bellerophon" 6, "Hector" 4, "Pallas" 3 to 5, and "Caledonia" 4.

Fourthly. Whether the amount of canvas spread is considered sufficient.

46. I think the amount of canvas spread quite sufficient for general purposes; no doubt all the ships of the squadron could carry much more sail with perfect safety, but larger masts and yards would diminish their power of steaming head to wind.

As they are now rigged, they are able to keep their positions in any assigned latitude and longitude, tacking, and even wearing, with little doubt, provided there be plenty of sea-room, and that they are not in line, nor called on to perform any manœuvres or evolutions of a fleet.

In some instances the ships have differed materially in the time they took to tack or wear; some times 11 or 12 minutes, and at others only 8.

The great difficulty in wearing appears to be in getting before the wind, for they will, on some occasions, pay off eight points, and then stop dead for some time.

47. I am at a loss to explain why the "Bellerophon" has such difficulty in tacking; the more so, that her screw is two-bladed, and she is therefore not toggled. The "Lord Clyde" and "Ocean," with four-bladed screws, never missed stays; I am, therefore, inclined to the belief that in this respect, when once the disconnected propeller is in motion, it matters little whether it be a two or four-bladed one.

Fifthly. "It will also be expedient to take an opportunity of testing the speed of the respective ships.

48. Several trials of steam at different speeds have taken place, for the results of which I beg to refer their Lordships to the accompanying "Report of Performances under Steam" (Enclosure No. 5).

49. Sixthly. *See* paragraphs 36, 37, 38.

Seventhly. The rolling of the ships has been accurately recorded on all occasions, and records accompany this Report (Enclosure No. 1).

50. Eighthly. "New and untried fittings." This paragraph of their Lordships' letter relates, no doubt, to H.M.S. "Ocean;" and as their Lordships have already been made acquainted with the report of the committee of officers appointed to investigate the merits, or otherwise, of the racers on Commander Scott's principle for transporting guns, it is not necessary for me to enter into further details.

Ninthly. Particular attention to be directed to the performances of the "Wivern."

51. I have already expressed my opinion on the "Wivern's" incapacity for sea-going purposes, and can only recommend that she be kept for coast defence.

52. Tenthly. "Usual exercises aloft." No opportunity has been lost of exercising the crews of the squadron aloft, in all the drills customary in an experimental squadron.

Eleventhly. "New fittings, or experimental articles on board."

53. Returns of new fittings in the respective ships have been called for, and accompany this Report (Enclosure No. 4).

54. Full details of all the observations recorded by Rear Admiral Warden and the captains of the respective ships accompany this Report, giving the various defects and proposed remedies which the experience of this cruise has led them to suggest.

55. I have endeavoured, in this Report, conscientiously and impartially to place before their Lordships the merits and failings of each ship, as vessels of war, as sailing ships, and as steamers; and as the result of this cruise, I feel bound to award the first place to the "Achilles." I am, however, of opinion that her great length is an insurmountable objection, and have no hesitation in saying that ships of the "Bellerophon" class, from their size and general handiness, particularly under steam, will prove more efficient and serviceable for war purposes.

56. Taken collectively, the ships have formed a very efficient squadron; they have cruised for more than a month continuously, at a stormy period of the year, and with the exception of a few spars and sails carried away, lists of which are hereunto appended, no ship has sustained any serious damage.

I am not aware that such a result has yet been attained by an ocean cruising squadron of iron-clads of any foreign power.

(signed)

H. A. Yelverton,

H.M.S. "Caledonia," Portland,
10 November 1866.

Rear Admiral Commanding.

REPORT of Rear Admiral *Warden*, on the Performances of the several SHIPS of the CHANNEL SQUADRON.

Sir,

"Lord Clyde," at Bantry,
27 October 1866.

IN obedience to the directions contained in your letter of the 18th ultimo, to afford you any information which my experience and judgment may suggest, on the several points referred to in your letter addressed to the respective captain of the squadron on the day previous, I proceed on the termination of our 33 days' cruise, to offer such observations and remarks as seem to me to be necessary, in order to assist you in coming to a right conclusion on the several points therein referred to; and if I do not take the subjects *seriatim*, as they are mentioned, it is only in the hope that the observations I may make on the subject matter of it, may take a more connected and well digested shape.

2. I shall begin by offering some opinion on the performances of the several ships: first, under steam; secondly, under sail; taking the question of guns and armament in the last place.

3. In the trial under steam down Channel, and towards the rendezvous, which was made during some part of the time against strong headwinds and a good deal of sea, at a given rate of speed of six knots by day, and five at night, with yards pointed to the wind and top-gallant mast on deck, I consider that all the ships behaved very well, except "Pallas" and "Research"; the latter, as you are aware, being out of sight astern by dark the first day, and the "Pallas" being a long way astern on the following morning, with the loss of jib-boom, having, I presume, pitched it away.

4. I think, on this occasion, the ships should be placed in the following order for general behaviour:—

1. "Achilles" and "Bellerophon," about equal, and first.
2. "Lord Clyde."
3. "Caledonia."
4. "Hector" and "Ocean."
5. "Pallas."
6. "Wivern."

5. With respect to the trials which have taken place under steam, at 4½, 5, 6, and 8 knots respectively, I am not sufficiently and accurately acquainted with the returns of coals expended on the several occasions, to speak positively as to how they would stand precisely in the order of merit for the most economical working; but I believe that the "Achilles," judged by the standard of the weight driven in proportion to a ton of coals, would take the first place; but if judged by the number of miles obtained by the expenditure of a ton of coals, then the "Lord Clyde" would take the first place, with "Achilles" and "Bellerophon" next, and that probably the "Hector" would prove the most expensive.

6. The trials under sail have been numerous, both on the wind and off the wind, and with propeller connected and disconnected, under variations of the weather, for the most part fine, but occasionally with strong breezes, and indeed generally of sufficient force to call out whatever good or bad qualities a ship may possess.

I should place the ships, I think, in this order, as to their performance under sail, thus:—

"Pallas" and "Research" first, and under all circumstances, the "Bellerophon" next, and the remainder so nearly equal, with so little difference between them at the end of a trial, as to make them practically equal.

Oftentimes, the difference of a good and indifferent helmsman having the effect of one ship gaining or being gained upon by another, I inclose the results of several trials which, I think, will quite bear out the foregoing statement, and place the ships in the following order as to their performance under sail:—

- | | |
|----------------|------------------------------|
| "Pallas," | "Hector," |
| "Research," | "Achilles;" and the |
| "Bellerophon," | "Lord Clyde" and "Caledonia" |
| "Ocean," | |

being the two worst, and the latter the most leewardly of all.

7. The "Achilles," I consider as quite an exceptional ship; but I believe that if her masts were differently placed, and more properly placed, and she carried anything like an amount of sail proportionate to her tonnage, or in the same proportion as her competitors, she would be superior to all but "Pallas" and "Research." She is a very weatherly ship now with her propeller disconnected.

8. I attribute the manifest superiority under sail, displayed by "Pallas," "Research," and "Bellerophon," to their masts being better placed; to the proportion of sail-power which is apparently greater than the others; and to their lightness, owing to their being only partially armoured, whilst all the others are armour-clad fore and aft.

9. With regard to the quantity of sail power carried by the several ships, I should say that generally it is quite sufficient; nor do I think it ought to be less, considering the various duties they may be called upon to perform; nor do I consider that it could be increased with advantage, or without incurring the risk of impairing their efficiency under steam.

10. It is quite sufficient for all general purposes, for assisting them to make long passages to distant stations, for the purpose of economising fuel on general service, to enable them to cruise within prescribed limits, as has been exemplified during the last month; but, whenever the ships may be called upon to perform any service which requires that they should manœuvre with precision and accuracy, or keep their station in line with great exactness, I am clearly of opinion that they would require the aid of steam to assist them in tacking and wearing, and oftentimes to preserve their place in line. This leads me to speak of their working under sail; they are all very uncertain as to the time they take in wearing, sometimes performing the evolution in from 8 to 11 minutes, and sometimes taking 15 and 16 minutes, and varying greatly on different occasions as to the time they take in getting before the wind, and the rapidity with which they come-to.

11. The same may be also said of tacking, but not to the same extent. This ship has never missed stays; and, I believe, with the exception of the "Ocean," is the only one of which this can be affirmed. The "Bellerophon" not only frequently misses stays, but I observed on two different occasions she refused stays; and on one of them, three and four times successively, and was obliged to wear.

On the occasions referred to, the other ships, except, I believe, "Pallas," stayed.

The same, to a certain extent, is true of "Pallas," which misses stays oftener than her superiority under sail would justify. The cause of this cannot be traced to the effect of the four-bladed screw alone, because the "Bellerophon" screw is two bladed; but her peculiar form of rudder may be, to some extent, the cause of producing this extraordinary result; whilst it is not improbable that being lighter ships forward than the wholly-armoured ships, they may be more easily knocked off by a sea or a heavy swell. Taking the average of four times tacking, the "Caledonia" was $9\frac{1}{2}$ minutes, "Lord Clyde" 10 minutes, "Bellerophon" 12 minutes, "Achilles" 12 minutes, "Pallas" 8 minutes.

The following is an approximate average of the time of wearing:—

	Minutes.							
"Caledonia" -	-	-	-	-	-	-	-	11
"Lord Clyde" -	-	-	-	-	-	-	-	$11\frac{1}{2}$
"Bellerophon" -	-	-	-	-	-	-	-	$12\frac{1}{2}$
"Achilles" -	-	-	-	-	-	-	-	12
"Hector" -	-	-	-	-	-	-	-	10
"Pallas" -	-	-	-	-	-	-	-	10

And on one occasion it occurred to the "Achilles" that she refused to wear.

12. As you are in possession of very frequent and minute observations as to the rolling of the several ships, it will be unnecessary for me to dwell on this head

head long; but it is well to remark, that on the 21st September, in a very long heavy rolling sea from the N.W., the ships rolled by signal, thus:—

	Degrees.
"Caledonia" - - - - -	25
"Lord Clyde" - - - - -	25
"Bellerophon" - - - - -	22
"Hector" - - - - -	20
"Ocean" - - - - -	20
"Wivern" - - - - -	25
"Achilles" - - - - -	16 only.

The "Pallas" signal was not seen from this ship. The maximum rolling of this ship occurred on Sunday night, the 21st inst., when she rolled 34 degrees one way, and 34½ degrees the other, and certainly there was neither sufficient sea nor swell to account for such a prodigious result. She had never previously reached more than 33 degrees, but that point or something approaching it was reached sufficiently often to justify me in saying that the extent to which she rolls generally must be considered as a very grievous and unfortunate defect in so fine a ship, and one so formidably armed, and possessing such power of offence and defence.

13. Entering upon the question now of disconnecting the propellers under sail, I must observe that my experience here has been somewhat limited by the fact of the chief engineer having objected to the screw being frequently disconnected, for fear that the hammering necessary to accomplish it might have the effect of injuring the bolt heads, in which case he might not have been able to replace them, or to get the nuts on them if he had been able to accomplish that.

14. The speed of this ship off the wind was once for two hours 7·8, with a strong breeze and plenty of sail; but otherwise her speed may be called 6 knots off the wind, and 4 to 4·5 by the wind. She carries generally from two or three turns of weather helm, and it is observed that, as a rule, she pays off more quickly to port than to starboard, and if under steam when stopped, with the helm amidships, she invariably falls off to port. This is doubtless the effect of the screw on the rudder. Upon one occasion of disconnecting the propeller, running free and going 5 knots, the effect was to increase her speed nearly a knot, and to relieve the helm about a turn, the screw revolving 13 times in a minute when set free.

The speed required to make the screw revolve is from four to five knots, but on one occasion, going free, running six knots, the propeller, when disconnected, did not move for nearly a couple of hours, and after that it was too short a time free to ascertain what the effect would have been. It was on this occasion that the "Bellerophon" signalled that her propeller was not revolving.

15. This question of disconnecting the propeller when under sail, necessarily brings into prominence the one of four and two-bladed propellers, and their relative advantages or otherwise generally. Never having had any previous experience of the working of a four-bladed propeller, I am unable to say which produces the best result under steam, or which is preferable as regards speed generally; but supposing them to be nearly equal in this respect, the question remains, are the advantages to be obtained by a two-bladed screw under sail, viz., increased speed and improved steering, sufficient to counterbalance one known disadvantage attaching to it, viz., greatly increased vibration? Moreover, I am by no means clear that the advantage would be uniform and constant, as, for example, on the 25th September the squadron tacked together, when "Caledonia," "Lord Clyde," "Hector," and "Pallas" tacked respectively in 9, 9, 8, and 6 minutes, but the "Bellerophon" refused stays once, and missed stays three times, and eventually wore, and she has only a two-bladed screw; but, as I have already observed, this defect may not rest wholly with the screw. But admitting that it was considered desirable, for general purposes, to adopt the two-bladed screw in preference to the other, I am very much afraid that whatever advantages were obtained would be counterbalanced by the increased vibration, more especially in the new ships of 4,000 tons and 1,000 horse-power

nominal, developing 6,000 indicated horse-power, for it is not, I believe, an exaggeration to say that if they were required to do much work at full power steam, the direct tendency would be to shorten the life of the ships, more particularly the wooden ones.

Whether my apprehensions on this head are well founded or not, I am of opinion that this particular point should be largely experimented upon before any final decision is arrived at.

16. I now come to the question of guns and armament, and I would premise what I have to say by observing that the fittings of the guns and slides are, generally, everything that can be desired as regards the working of them in smooth water, or moderate rolling, say, up to 15 or 16 degrees; but I am of opinion that the train whips would be better for being increased in size, and for being made of hide instead of rope, and I think, also, that attention might be turned with advantage to a more convenient place for belaying them than the rear of the slide, where it is difficult to effect it when the gun may be jerking in and out of the port.

Perhaps small bollards on the deck might be placed near the combings of the hatch, in the rear of the guns, without any serious inconvenience, or they might be tried on the side of the slide, instead of the rear of it.

17. On Wednesday, the 26th September, the signal made was, "Can you fight weather guns?" and as the "Lord Clyde" was the only ship which replied shortly, "No," I hope I shall stand excused for going somewhat at length into a description of that day's practice, and what took place on that occasion.

The interpretation put by me on the signal was to the effect that it meant can you fight guns so as to engage an enemy? not attaching a literal or particular meaning to the words "weather guns," as of course all actions will be fought under steam.

The ship was rolling during the whole forenoon from 22 to 23 degrees, and the average maximum roll, from 8 to 12 o'clock, was from 26 degrees to leeward and 21 degrees to windward, and it may not be out of place to remark here that the rolling, although deep, was easy, the peculiarity being, that the ship appears to dwell at the end of the roll on each side more than is usual with ordinary ships.

When the signal was made to get up steam and lay out targets, it was necessary to place the ship's head to the sea before it could be considered safe to send the men aloft to furl sails.

The precaution was then taken of battening down the main-deck hatchways fore and aft, and as the practice was limited to 15 rounds, 5 guns only on the port side were cast loose, and the practice commenced.

18. It was found utterly out of the question to fire at the target in any other position than when head on to the sea, and the time occupied in firing the prescribed number of rounds was about three-quarters of an hour. It was necessary to steam round the target once or twice to bring the guns to bear when the ship rolled to 28 degrees, whilst it did not exceed 10 or 11 degrees when head to sea. The result was, that the main deck was flooded with water to the extent of flowing over the hatchways, the water poured in and out of the guns, two shot rolled overboard out of them, and one was followed by the cartridge. Two of the guns at different times got the better of the crew, and banged in and out of the port several times with extreme violence, and two of the slides were to a certain extent damaged by it.

19. It is needless to say that the practice was wild in the extreme, nor do I believe that at any time there was the least probability that we could have hit any enemy's ship, except by accident or miracle. I did not observe any ship, except the "Achilles," fire while in the trough of the sea, but she was comparatively quite steady. I have been since informed that the "Hector" did so likewise. Nor did all the ships fire the prescribed number of rounds, the "Bellerophon" only two, which shows a manifest desire to get their guns secured again.

20. The result of that day's experience would seem to prove that it is possible (though certainly never desirable) to cast loose and fire these 7-inch guns in a
seaway,

seaway, either singly or a few at a time, with well-trained men or experienced crews; but under the circumstances of that afternoon I hold that it would have been utterly impossible to have gone to general quarters or fought an enemy's ship.

21. To have opened all the main-deck ports, judging by the effect of opening only five, would have been to have washed the men away from the guns, and consequently they (the guns) would have taken charge of the deck by getting adrift, but with what consequences it would be utterly impossible to predict.

The most of the cartridges, if not all of them, would have been destroyed in the guns, and the guns which could have been got off would have hurt nobody. Three times in the course of that afternoon did the ship roll her main chains right under, and threw the water on the upper deck. The lower sills of the main-deck ports are about 8 feet 6 inches from the water when she is deep, and a roll of 15 degrees just touches the lower sill, and 22 degrees' roll just about covers the whole port.

22. I feel therefore that I was right in my reply, "No," to the question, "Can you fight your weather guns?" and that the occurrences which I have felt it necessary to detail afford the fullest justification of it, although my opinion was not in accordance with that of the other officers present.

23. Another circumstance occurred during this afternoon's practice which I think worthy of notice. I observed that one of the guns, when fired, did not come into a taut hurling, owing to the compressor being very tightly screwed up; but, notwithstanding this being so, with the best roll the gun jerked violently out in the port. It is difficult to conceive much heavier guns being worked on a broadside, and kept under proper management and control, without the aid of machinery of some sort or the other.

24. The experience of the practice on the particular day in question leads to the reflection, and to the very important question, "Could a turret ship of equal size and power have done better, or have proved herself more efficient in powers of offence and defence?" and I think there are some considerations which would lead to this question being answered in the affirmative. Take the position of this ship first; she would have been utterly unable, as I think I have conclusively shown, to have opened her main-deck ports to fire, unless placed head on to the sea. Her broadside guns train rather more than two points before and abaft the beam, and they are supported on the upper deck by two guns, one on the quarter deck and one on the forecastle, training respectively about 19 degrees before and abaft the beam. It follows, therefore, that if a turret ship had taken up a position in either bow or quarter of this ship, there would have been a radius of four or five points on either bow or quarter, which would be points of impunity, or she would at the worst only have to contend with one gun. I enclose a diagram which will illustrate my meaning. But further, suppose the turret ship chose or was obliged to take up a position where the broadside guns of this ship would bear on her when they could be fired, the result would be that the main deck of this ship and the upper deck of the turret would be both flooded alike; but the advantage would, as I think, still remain with the latter. The sea might, and probably would, wash right over the deck of the turret ship, but the water would be got rid of, whilst here it is not at all clear that it could be got rid of, and certainly not as fast as it would accumulate.

25. The guns, being amidships on the line of the keel, would not be subject to such violent motion, and therefore more easily managed, and make better practice. The gun, if it did get from under all control, could not find its way out of the turret; but if a main-deck gun got adrift on the deck here, it is difficult to say what consequences might not ensue. Moreover, it is not conceivable that the turret could roll so as to destroy the cartridges in the guns; whereas in the case of this ship the larger proportion, if not all of them, would be so destroyed.

26. I am quite aware that the advantages I have named, and several others, have already been clearly and forcibly stated in the Report of the Turret-Ship Committee, presided over by the Earl of Lauderdale, dated June 1865; still, in a

report of this nature, I should not have felt justified if I had abstained from giving expression to the reflections arising in my own mind from the target practice on the afternoon of the 26th ultimo.

Rear Admiral H. R. Yelverton, C.B.,
Commanding in Chief.

I have, &c.
(signed) *F. Warden*,
Rear Admiral.

REMARKS on Admiral YELVERTON'S REPORT on the Cruise of the CHANNEL FLEET.

Admiralty, S. W., December 1866.

Value of Admiral
Yelverton's
Report.

ADMIRAL Yelverton's Report is so valuable and so full of instruction to the Controller's Department that, I think, it my duty to express to their Lordships in a public manner the very high sense I entertain of this able document, which is as encouraging as it is instructive to the Constructor's Department.

Discriminating
criticism.

The just appreciation of the merits of the respective ships with reference to the purposes for which they were designed, has not prevented Admiral Yelverton from pointing out the faults and imperfections he has observed, and this discriminating criticism renders every opinion he has put forth doubly valuable.

Objects for which
the several ships
were designed.

Being very largely responsible for all the ships that Admiral Yelverton has reported on, with the exception of the "Hector" and the "Wivern," I trust their Lordships will allow the very brief remarks I have to offer on their qualities as detailed by Admirals Yelverton and Warden, to be fairly considered.

"Caledonia's"
class.

The "Caledonia" and "Ocean" were ships of the line, of the largest class of two-deckers, in a certain state of advancement when in the spring of 1861 I was appointed to the Controller's Office. The proposal I made in May 1861, to the Board, to convert these ships and three others into what they now are, was accepted, and I beg leave to call their Lordships' attention to the concluding paragraphs of those submissions which in substance were as follows :

Controller's sub-
mission respecting
this class in 1861.

"No doubt is entertained that the ship would be a sufficiently good sea-boat to go to the Mediterranean if required, and that her speed would be at least as great as that estimated (12·4 knots); but while proposing this mode of action, I beg leave to observe that such ships will, in my opinion, be in every way inferior to ships of the "Achilles" class with those modifications which we propose to make in her plating, but I have no hesitation in making these proposals, not as the most economical, not as the wisest, and not as the safest way of meeting the exigencies of the case, but because I am led to believe that other considerations make this plan the only practicable one." I certainly appeal with confidence to the Admiral's reports as a proof that my expectations and those I held out to their Lordships in proposing these ships have been realised.

"Hector's" class.
Sir B. Walker's
submission re-
specting her in
1861.

The "Hector" was designed and a contract entered into for her construction before I was in office. I quote a passage from Sir B. Walker's submission as to the design of this ship, to enable their Lordships to judge how far the expectations held out to the Board of Admiralty that ordered her construction have been fulfilled. "But it will scarcely be questioned that this amount of security against injury from shot and shell is not to be obtained without compromising important qualities of sea-going ships. Heavy armour plating and wood work, extending over the comparatively fine ends of a ship like that proposed, must necessarily contribute materially to increase the pitching and ascending motion of the ship in a sea; ships so weighted will hence, it is believed, be regarded as unsuited for general service."

Design of
"Achilles."

Very high praise has been awarded to the "Achilles." I am entirely responsible for all the features of that ship which differ from the "Warrior's." They principally consist in a flatter midship section and in the important addition of an armour-plated belt entirely round the water-line.

I do not think that I misled the Board of Admiralty in promising them very satisfactory results from these alterations in the original design.

Designs of "Bel-
lerophon," "Pal-
las," "Research,"
and "Lord Clyde"
class.

The "Lord Clyde," the "Bellerophon," the "Pallas," and the "Research," are all ships of a later design, and with this report before me and the official reports of their trials at the measured mile, I cannot but feel that the expectations

I held

I held out respecting the power and qualities of these ships have been satisfactorily fulfilled.

The "Lord Clyde" was to carry heavy armour plating and heavier armament than the ships converted in 1861.

The speed, stowage, and accommodation, were to be at least equal to those ships. The report points out that she has completed, fulfilled those conditions.

The "Bellerophon" is, by common consent, the most formidable iron-clad afloat.

The reports of the "Pallas" are highly favourable; designed as a cruising ship, armour plated and of a great speed, on small dimensions, she has fulfilled the expectations formed of her powers; and if the alterations made in her original design shewn to be advisable by the experience we year by year obtained of the qualities of iron-clads, have slightly diminished the very exceptional rate of speed expected from the original plan, her qualities as an armour-plated cruiser are, as shewn in this report, most satisfactory.

The "Research" has always been considered as the least satisfactory work turned out by the Controller's Department. It may not be remembered that she was a converted wooden sloop, and that her dimensions were consequently much restricted. The steam power in consequence was small, but she exceeded at more than one trial at the measured mile, the speed promised for her.

Nevertheless the open deck and deep waist of this ship were represented by competent judges as so objectionable, that both in the "Pallas" and "Bellerophon," the idea was abandoned: and since then the "Research" has also had an upper deck added to her, which, as will be seen from Admiral Yelverton's Report, has removed the distrust felt as to the sea-going qualities of the ship.

It is to the reports of Admiral Sir S. C. Dacres that we owe what, on the whole, is a manifest improvement on these three ships.

The reports of Admiral Yelverton and Warden confirm, in a marked manner, those I have from time to time made previous to and since the purchase of the "Scorpion" and "Wivern," that these ships were totally unfit for cruising ships.

I cannot agree with Admiral Yelverton that they are even well adapted for coast defence, but I entirely concur in thinking that it is the only use to which they can be put.

I have taken the reports of the two admirals as a whole and considered them as proving that the iron-clad fleet satisfactorily fulfilled what it was designed to perform.

I have not referred to the still higher praise given to the respective ships by the captains of the fleet.

Their opinions must be taken for what they are worth, and leaving the subject as a whole, I will make a few remarks on details and suggestions which I find in the various reports from the fleet.

As the fleet was principally kept under sail, I will take this part of the subject first. The sail-power supplied is considered sufficient in all the ships, and any increase in it would, in the judgment of both admirals, be injurious to the efficiency of the ships considered as vessels of war.

In all the ships difficulties were experienced, or, to say the least, uncertainties, in wearing. This defect is, I think, more or less inherent to every screw ship, and is consequent upon the screw aperture.

It is, of course, aggravated in all screw ships that do not raise the screw; by the drag of the screw seriously retarding the ship's way, and by its disturbing the proper flow of the water to the rudder. I have repeatedly noticed the fact (the uncertainty as to the time to be taken in wearing in a screw ship) long before the invention of iron-clads, especially in a seaway and with little way on, and these are the circumstances under which the difficulties complained of arose.

As a confirmation, I may mention that this defect was pointed out by the reports of Sir Charles Fremantle in 1860, and of Admiral Elliot, when one was the admiral in command of the Channel Fleet and the other was captain of the fleet.

The "Bellerophon" and "Pallas" are reported as having missed stays, the former rather frequently, while the "Lord Clyde" never refused to tack. The

Fulfilment of the promises made as to "Lord Clyde" and others.

"Pallas."

"Research."

Improvements on the designs of "Bellerophon," "Pallas," and "Research," due to Admiral Dacres' Report.

"Wivern," unfavourable report.

Admirals Yelverton and Warden's Report, taken as a whole, proves that the iron-clad fleet fulfils the purpose for which it was designed.

Sailing qualities considered.

Difficulties of wearing.

These difficulties exist in screw ships not iron-clads. See Sir C. Fremantle's Report in 1860. Ships missing stays.

Not attributable to plough bow.

Balanced rudder in "Bellerophon."

Exposure of rudder when pitching.

"Pallas," missing stays.

Rolling of the ships.

Bilge keels.

Comparison of ships so fitted with others not fitted.

"Caledonia's" class necessarily heavy rollers.

Partially armoured ships roll less.

Danger of converting wooden ships to armour-plated ships.

Advantages of large ships over small.

The importance of behaviour under steam.

conclusion may safely be drawn that it is not the prolonged or plough bow that has occasioned this mishap, all these ships being in this respect alike.

The balanced rudder, I have no doubt, requires very careful management and some study in order to make its effects certain under the circumstances in which it was at times not successful in the "Bellerophon," viz., comparatively little way, a good deal of swell, and the screw disturbing more or less the action of the water on the surface of the rudder.

The exposure of a large surface of this rudder when the ship is pitching is perhaps more an apparent than a real evil; the surface exposed when a ship is supplied with a common rudder when compared with the balanced rudder, if both ships are pitching alike, will be nearly the same; but it will consist partly of rudder and partly of stern post, and in either case the damage done by a shot striking this exposed surface, and the prospect of doing so would be nearly alike; though on the whole, more mischief would be done to rudder and stern post, including pintles and gudgeons, than to the balanced rudder, which depends on no such contrivances.

When steaming, however, all rudders and stern posts would be less visible.

The cause of the "Pallas" missing stays is accounted for by her captain in his report without disparagement to the qualities of the ship.

The rolling of some of the ships, especially of the wholly-armoured ships, is excessive. It is a defect consequent on the centre of gravity of these ships being from the nature of the case extremely low. I cannot concur in the opinion of Admiral Yelverton that bilge keels would mitigate the rolling to any extent. The "Caledonia" is without them.

That ship and the "Royal Oak," which was fitted with them, in a heavy swell off Malta, compared their angles of rolling. The "Royal Oak" rolled the most, and an application was made (quoting the "Caledonia's" case) for them to be taken off the "Royal Oak's" bottom. This was complied with. Since that time the "Prince Consort," fitted with bilge keels, and the "Royal Oak" without, have been together, and the "Prince Consort" is said to have rolled the most.

I am, however, of opinion that all converted ships of the "Caledonia's" class, are inevitably heavy rollers, from the position of their weights, and I consider the defect a sufficient reason for not adopting Admiral Yelverton's recommendation for doubling the number of ships of this kind.

Our experience seems to show that all the wholly-armour plated ships roll the heaviest, and that of the French corroborates it in the strongest possible manner. (*See the Confidential Report, forwarded by Captain Horeon 24th October.*)

If, therefore, we turned our line of battle ships into "Caledonias," we should do so with the certainty of perpetuating a very serious fault. If again, we convert them into the "Zealous," or partially-armoured class, we leave wooden unarmoured extremities, fearfully liable to be set on fire by shells, a catastrophe which happened to the Italian ship, "Palestro," at the battle of Lissa. Except, therefore, as a makeshift, and only if nothing better can be got, I could not recommend Admiral Yelverton's proposals for adoption.

The last remark I shall make upon the various qualities of the ships under sail is that in this case, as when ships are under steam, large vessels have a great advantage in steadiness over small, the largest ship of the fleet, the "Achilles," being the steadiest, and propelled by the smallest amount of canvas in proportion to her size.

I may add that the propelling power, whether of steam or canvas, is always less in proportion to displacement in large ships than in small; for instance, the "Duncan" has 5.27 square feet of sail to every ton of displacement; the "Galatea" and "Ariadne," 5.9; the "Pearl," 7.1; the "Rinaldo," 9.7; and the "Plover" class, 9.9; yet it is almost certain that the "Duncan," the "Ariadne," or "Galatea," and the "Inconstant," would outsail the "Pearl," and the "Rinaldo" and "Plover."

It is impossible not to attach far greater importance to the steam trials of these ships than to their sailing trials.

The day of the battle is the day of proof of the true merits of the respective ships; every other consideration grows pale before this decisive test, and it is under steam that all naval battles with iron-clads must be fought. The behaviour

behaviour of the ships under steam is therefore of an importance that cannot be exaggerated, and I have prepared tables from these returns which will show the absolute and relative maximum speeds of the ships at their load lines in smooth water; their relative speeds compared with engine power and displacement; their absolute consumption of coal at a given speed under the same circumstances, and the proportion between their consumption under such circumstances and the quantity of coal they carry; the two latter being of great importance.

Review of the merits of ships under steam, as shown by the trials.

Though the trials were scarcely of sufficient length to give results which could be relied on in all respects, they, with the exception of the maximum speed trial, may be taken as affording some indications of the relative merits of the ships.

The maximum speed trial was not only too short, but one of the ships, the "Bellerophon," never obtained anything approaching to the full power of her engines, owing to priming.

The maximum speed trial of little value.

I do not think, therefore, that Admiral Yelverton has assigned the "Bellerophon" the place she is capable of taking with regard to absolute speed at full power; nor do I think that because, on the occasion of steaming down channel at a speed of six knots by day and five by night, the "Pallas" was discovered to have dropt astern in the night, that it follows she could not have kept her place or behaved badly. Indeed the other trials distinctly prove the reverse.

"Bellerophon" not properly placed.

Unfavourable remarks against "Pallas" not borne out by the results of trials.

I must again observe, with reference both to "Pallas" and to "Research," that larger ships when steaming have a great advantage over small ones, if the lines of the ships are tolerably alike.

Smallness of "Pallas" and "Research" a disadvantage.

The "Research," of only 1,200 tons, could hardly be expected, under the circumstances, to keep pace with vessels of 4,000 and 6,000 tons, unless by the exertion of much greater horse-power in proportion (and with that she is not supplied).

TABLE (A.)

TRIALS at MEASURED MILE.

Name of Ship.	Indicated Horse Power.	Speed.	Slip per Cent.	Speed ³ × D ³ / ₄	Proportion Burnt per Hour to Total carried.
				I. H. P.	
Achilles - - - -	5,722	14.322 {	F. 9.45 N.E. 9 A. 0.81 N.E. 9	230.1 -	$\frac{1}{92}$
Bellerophon - - -	5,966	14.227	2.02	165.9 -	$\frac{1}{78}$
Lord Clyde - - -	5,807	13.312	9.23 N.E. 9	150.4 -	$\frac{1}{78}$
Pallas - - - -	3,606	13.058	10.39	146.7 -	$\frac{1}{60}$
Ocean - - - -	4,244	12.896 {	F. 2.12 N.E. 9 A. 5.88 -	176.7 -	$\frac{1}{110}$
Caledonia - - - -	4,552	12.863 {	F. 5.54 - A. 12.75 -	167.0 -	$\frac{1}{100}$
Hector - - - -	3,256	12.360	20.01	201.0 -	$\frac{1}{98}$
Research - - - -	937	10.176	24.18	162.7 -	$\frac{1}{102}$
Wivern - - - -	1,446	10.059	23.27	133.1 -	$\frac{1}{166}$

The above Table (A.) shows the maximum speed obtainable by each ship under favourable circumstances at the measured mile in smooth water, all the ships being at their deep load line.

Absolute speed of ships.

The absolute speed attained, places the ships in the following order :

1. Achilles.

2. Bellerophon.

3. Lord Clyde.

4. Pallas.

5. Ocean.

6. Caledonia.

7. Hector.

8. Research.

9. Wivern.

Relative speed of ships.

The relative speed, that is in proportion to indicated horse-power and displacement, as shown by the figures in the 5th column (the constants due to indicated horse-power, speed, and displacement), places the ships in the following order :

1. Achilles.

2. Hector.

3. Ocean.

4. Caledonia.

5. Bellerophon.

6. Research.

7. Lord Clyde.

8. Pallas.

9. Wivern.

Turning power of ships.

The power of turning when at full speed on the measured mile, as shown by the Table (B.) below, places the ships in the following order :

TABLE (B.)

Name of Ship.	Time of going round the Circle.	Diameter of Circle in Yards.	Date.	Remarks.
	M. S.			
Bellerophon - - -	4 10	559	17 August 1866	
Pallas - - - -	4 24	573	18 April „	
Ocean - - - -	4 57	480	25 June - 1864	
Caledonia - - -	5 15	587	7 June - 1865	
Lord Clyde - - -	5 19	502	10 Feb. - 1866	Stores incomplete.
Hector - - - -	5 36	- -	23 Feb. - 1864	
Achilles - - - -	7 15	916	15 March 1865	

The “Research” and “Wivern” being smaller vessels, are not compared with the others.

These, as I said before, are the maximum results obtained in smooth water for a short time at the measured mile.

Speed of ships in open sea at fixed rates.

The following Table (C.) has been compiled with a view to ascertain the relative merits of the ships as steamers, when proceeding at a fixed rate at sea under such circumstances as are ordinarily met with :—

TABLE (C.)

TRIALS of SHIPS in the OPEN SEA at Fixed Rates.

N A M E of SHIP.	When Tried.	I. H. P.	Speed.	Force of Wind.	State of Sea.	Mean Angle of Rolling.	$S^3 \times D^{\frac{3}{2}}$ I. H. P.	Slip per Cent.	Mean Consump- tion of Coal per Hour.	Proportion burnt per Hour to Total carried.
			<i>Knots.</i>						<i>Lbs.</i>	
Achilles - -	20 Sept. 1866	1,097	6	6 to 7	Moderate ahead - - -	Not recorded.	87.5	19.09	3,869	$\frac{1}{405}$
Bellerophon - -	" "	996	6	5 to 6	Heavy W. swell - - -		74.5	16.67	4,368	$\frac{1}{318}$
Caledonia - -	" "	1,455	6	4 to 5	Westerly - - -		53.0	37.08	4,296	$\frac{1}{313}$
Hector - -	" "	1,006	6	5 to 7	Moderate head swell - -		74.4	40.09	4,480	$\frac{1}{215}$
Lord Clyde - -	" "	1,248	6	5	Moderate; confused - -		64.0	18.37	3,136	$\frac{1}{425}$
Ocean - -	" "	1,441	6	5 to 8	Short head swell - - -		52.4	27.00	5,772	$\frac{1}{249}$
Pallas - -	" "	875	6	5 to 8	Moderate ahead, increasing -		58.6	30.00	2,610	$\frac{1}{249}$
Research - -	Not in company.									
Wivern - -	20 Sept. 1866	No cards.	6	6 to 8	Head sea - - -		No cards	45.0	3,248	$\frac{1}{221}$
Achilles - -	21 Sept. 1866	899	5	5 to 6	Moderate shore head sea -	Not recorded.	61.8	25.0	4,786	$\frac{1}{323}$
Bellerophon - -	" "	926	5	5 to 6	Heavy swell from W. - -		36.9	29.1	5,301	$\frac{1}{262}$
Caledonia - -	" "	1,211	5	5 to 6	Swell from W. - - -		36.9	41.8	5,264	$\frac{1}{262}$
Hector - -	" "	1,179	5	6	Head swell - - -		36.8	51.9	5,824	$\frac{1}{165}$
Lord Clyde - -	" "	1,116	5	5 to 6	Ground swell - - -		41.5	22.3	3,584	$\frac{1}{375}$
Ocean - -	" "	1,260	5	5 to 6	Head swell - - -		34.7	38.7	4,760	$\frac{1}{292}$
Pallas - -	" "	732	5	5 to 6	Long moderate head sea -		40.6	36.0	2,576	$\frac{1}{252}$
Research - -	Not in company.									
Wivern - -	21 Sept. 1866	No cards	5	4 to 6	Head sea increasing - -		No cards	54.8	3,080	$\frac{1}{233}$
Achilles - -	12 Oct. 1866 -	1,829	8	5 to 6	Moderate starboard bow -	Not recorded.	124.4	14.0	5,998	$\frac{1}{261}$
Bellerophon - -	" "	1,701	8	5	Rough - - -		103.4	14.5	6,384	$\frac{1}{218}$
Caledonia - -	" "	1,762	8	3 to 5	Moderate swell ahead - -		103.8	21.1	6,272	$\frac{1}{220}$
Hector - -	" "	1,659	8	4	Slight swell - - -		107.0	33.8	7,560	$\frac{1}{127}$
Lord Clyde - -	" "	1,632	8	4	Moderate - - -		116.2	4.1	4,480	$\frac{1}{300}$
Ocean - -	" "	2,114	8	4 to 5	Short sea - - -		84.7	22.9	6,160	$\frac{1}{225}$
Pallas - -	" "	938	8	4 to 5	Moderate short sea - -		129.7	11.7	3,042	$\frac{1}{214}$
Research - -	Not in company.									
Wivern - -	Not in company.									

TABLE (C.)—TRIALS of SHIPS in the OPEN SEA at Fixed Rates—continued.

N A M E of S H I P.	When Tried.	I. H. P.	Speed.	Force of Wind.	State of S.ea.	Mean Angle of Rolling.	$S^3 \times D_{\frac{2}{3}}$ I. H. P.	Slip per Cent.	Mean Consump- tion of Coal per Hour.	Proportion burnt per Hour to Total carried.
			knots.						lbs.	
Achilles - -	1 Nov. 1866 -	5,786	13.45	1 to 3	Smooth - - - -	Not recorded.	186.8	2.4	18,214	$\frac{1}{86}$
Bellerophon -	" "	4,156	11	0	Head swell - - - -		110.1	14.2	14,168	$\frac{1}{98}$
Caledonia - -	" "	4,597	11.25	2	Swell from W. - - -		110.7	22.7	15,176	$\frac{1}{91}$
Hector - -	" "	2,102	10	2	Slight swell on quarter - -		164.9	26.4	10,080	$\frac{1}{96}$
Lord Clyde -	" "	4,852	13	3	Surface smooth, but swell -		1 67	4.73 N.E. 9	15,008	$\frac{1}{89}$
Ocean - -	" "	3,997	11	1	Short swell on beam - -		116.4	14.1	11,424	$\frac{1}{121}$
Pallas - -	" "	2,994	11.9	2	Head swell - - - -		133.7	16.9	7,000	$\frac{1}{93}$
Research - -	" "	649	7.2	2	Swell from S.W. - - -		83.2	37.9	2,744	$\frac{1}{104}$
Wivern - -	" "	No cards.	8.5	2 to 3	Slight swell from W. - -		No cards.	31.0	3,356	$\frac{1}{214}$

The first trial took place with a moderate, confused, and increasing head sea, the force of the wind varying from 5 to 8, the ships steaming head to wind. Remarks on position of ships in the first trial.

As each ship was going 6 knots, there are two elements of merit to be considered, one the proportion of indicated horse-power to displacement, which in each ship produced 6 knots; the other, the consumption of coal in proportion to the whole quantity carried: as this latter regulates the distance to which under the circumstances a ship could proceed, it is an important element in the consideration of her qualities.

In this trial, the constants, as shown in the 8th column, place the ships in the following order:

1. Achilles.
2. Bellerophon.
3. Hector.
4. Lord Clyde.

5. Pallas.
6. Caledonia.
7. Ocean.

Position of ships as shown by constants on first trial.

Those in the last column place them, as to the distance the coals would carry them under these circumstances, in the following order:

1. Lord Clyde.
2. Achilles.
3. Bellerophon.
4. Caledonia.

5. Pallas.
6. Ocean.
7. Wyvern.
8. Hector.

First trial. Position of ships with reference to the distance their coals would carry them.

The second trial took place at a speed of five knots, with a moderate short head sea and some swell, the force of the sea being from 5 to 6. Second trial.

Placing the ship first by the constants, and secondly by the proportion of coals burnt to the whole quantity carried, they will stand thus:

- 1st.
Achilles.
Lord Clyde.
Pallas.
Bellerophon.
Caledonia.
Hector.
Ocean.

2nd.
Lord Clyde.
Achilles.
Ocean.
Bellerophon.
Caledonia.
Pallas.
Wyvern.
Hector.

Second trial. Position of ships, calculated as before.

Third trial.

The third trial took place with a moderate swell ahead, at a speed of eight knots, the force of the wind varying from 3 to 6.

Placing the ships as before by the constants in one column, and by their consumption of coals in the other, their order of merit is as follows :

Third trial.
Position of ships
as before.

1st.	2nd.
Pallas.	Lord Clyde.
Achilles.	Achilles.
Lord Clyde.	Ocean.
Hector.	Caledonia.
Caledonia.	Bellerophon.
Bellerophon.	Pallas.
Ocean.	Hector.

Fourth trial.

The fourth trial took place at a speed of six knots ; the strength of the wind varied from three to four, and the water was moderately smooth.

Placing the ships as before, their order of merit was as follows :

Fourth trial.
Position of ships.

1st.	2nd.
Achilles.	Lord Clyde.
Pallas.	Achilles.
Caledonia.	Caledonia.
Lord Clyde.	Bellerophon.
Hector.	Pallas.
Bellerophon.	Ocean.
Ocean.	Hector.

Fifth trial.

The fifth trial took place at a speed of five knots ; moderately smooth water, and light winds varying from three to four.

Placing the ships as before, the order of merit was as follows :

Fifth trial.
Position of ships.

1st.	2nd.
Achilles.	Lord Clyde.
Pallas.	Pallas.
Hector.	Ocean.
Ocean.	Bellerophon.
Lord Clyde.	Achilles.
Caledonia.	Caledonia.
Bellerophon.	Hector.

Sixth trial.

The sixth trial took place at a speed of five knots, the force of the wind varying from 3 to 5, and a considerable swell on the beam. On this day's trial the rolling was recorded. Placing the ships as before, the order of merit was as follows :

Sixth trial.
Position of ships.

1st.	2nd.
Achilles.	Bellerophon.
Bellerophon.	Ocean.
Lord Clyde.	Lord Clyde.
Ocean.	Achilles.
Hector.	Pallas.
Pallas.	Caledonia.
Caledonia.	Hector.

Remarks on the
number of boilers
used in all these
trials.

All the preceding trials appear to have been made with a reduced number of boilers, and from the large hourly consumption of fuel in some of them, it is evident that the fires must have been urged to keep up sufficient steam to maintain the speed required.

Mode of using the
boilers not econo-
mical as regards
the consumption
of fuel.

It may be assumed, with tolerable certainty, that if the fires had been lighted in all the boilers, and not urged, taking care to burn the ashes over again as much as practicable, a very considerable economy of fuel might have been realized ; and I submit to their Lordships that whenever the fleet re-assembled, the attention of the Admiral in command should be called to this point, with a view to its being practically determined by experiment.

The

The last trial was an attempt to get at the maximum speed of the several ships at full power on the open sea, the force of the wind being from 1 to 3, and a head swell of no great amount. The "Achilles," though she realised as much horse-power as at the measured mile, fell considerably short of the speed then obtained, and all the others failed in developing either the power or the speed they had recorded in their trials.

Last trial at maximum speed.
Trial not satisfactory.
"Achilles."

This failure was very marked in the "Bellerophon," and clearly showed how badly the engine-room was managed; she could only get 4,156 horse-power instead of 6,046, and 11 knots speed of 14. (See also Chief Constructor of the Navy's remarks, dated 7th November 1866, on the small value to be attached to this trial.)

"Bellerophon."

The "Lord Clyde's" indicated horse-power fell short of what it should have been, though she realised a speed of 13 knots.

"Lord Clyde."

The "Caledonia," "Hector," "Ocean," "Research," and "Wivern," were also far below their ascertained speed, though the "Caledonia's" and "Ocean's" indicated horse-power was fairly developed.

"Caledonia" and others.
Horse-power not developed.
"Pallas"

The "Pallas" showed better speed than might have been expected from the smallness of the horse-power she was able to obtain.

Except, therefore, as a decisive proof of how necessary it is to practise constantly the engine-room staff of the several ships, this last trial is of no value whatsoever.

Practice of stokers necessary.

Proceeding, then, to the value of the respective ships under steam, the first place as to absolute swiftness belongs to the "Achilles."

Value of the ships under steam.

This ship almost invariably shows the highest constant, due to indicated horse-power, speed, and displacement at whatever speed she is proceeding; and in four trials out of the six she takes the second place as to the distance the coals she stows would carry her. Against these many good qualities the length of time occupied in turning must be considered a great set off.

Qualities of
"Achilles."

The "Bellerophon" takes the second place for absolute speed, for the abortive trial on 1st November cannot even be looked at, but, as a general rule, her constants were low. She, however, takes an average place as to the distance the coals stored will carry her, and, on one occasion, the best place. These discrepancies, and the trial of November 1st, clearly prove that the stoke-hole was more in fault than the ship. She takes the first rank of all in turning power, an advantage which cannot be exaggerated.

Qualities of
"Bellerophon."

The "Lord Clyde" takes the third place for absolute speed; her constants are generally fair, and she has taken the first place five times out of six as to the distance her coals would carry her at fixed rates of speed; this, and her good performance at the trial of 1st of November, show that her engine-room staff are fairly efficient.

Qualities of
"Lord Clyde."

Her turning power places her slightly below the "Ocean" and "Caledonia," or about fourth in the scale.

The "Pallas" takes the fourth place for absolute speed; her constants vary very much. At the measured mile she only takes the eighth place, but at fixed speeds at sea she takes the first place once, the second place three times, the third place once, and she was never last. She takes the fifth place generally as to the distance her coals will carry her at fixed speeds.

Qualities of
"Pallas."

She takes the second place as to her power of turning.

The "Ocean" and "Caledonia" are, as might be expected, so much alike that they may be considered as one.

Qualities of
"Ocean" and
"Caledonia."

They take the fourth place as to absolute speed; their constants at the measured mile give them the third place, while at sea they were generally very low in the list, the "Ocean" often last.

One or other of these ships, more often the "Ocean," ranks third in the distance she could perform at a given speed with the quantity of coals stowed; and the failure of the "Caledonia" occasionally to take that place points, I think, to defective management in the stoke-hole. The turning of the two ships places them third in the list, just above the "Lord Clyde," but with a difference of only a very few seconds.

The "Hector" takes the last place in absolute speed.

Qualities of
"Hector."

Her power is low in proportion to her displacement, but her constants and the measured mile place her second, while at sea she was much lower on the list. She invariably takes the last place in the distance she could perform with

the coals she can carry, and she also takes the last place in her powers of turning.

Discrepancies in the result of trials diminish their value.

Summary of their merits.

Offensive and defensive powers of the ships.

"Achilles."

"Bellerophon."

"Lord Clyde."

"Ocean."

"Hector."

"Pallas."

Iron masts, &c.

Comparative advantages of four and two bladed screws.

No marked difference caused in sailing by either screw.

Remarks on turret ships.

These results show, I think, conclusively, from the great discrepancies which appear at the performances of the ships at different times, that much practice in the engine-room is still essential to the development of their powers, but that taking all the qualities of the several ships as a whole, the "Achilles," "Bellerophon," "Lord Clyde," and "Pallas," possess remarkable features of excellence as steam ships; that the "Ocean" and "Caledonia" are above the average, and the "Hector" slightly below.

The offensive and defensive powers, and the behaviour of the ships as sea boats, are subjects of the greatest importance, and have been fully reported on by the admirals and captains, judging by these reports.

The "Achilles" will take the first place as to behaviour at sea, and the second as to offensive and defensive powers, while the "Bellerophon" will take the first place as to offensive and defensive power, and the second as to behaviour at sea. The "Lord Clyde" will take the third place as to offensive and defensive power, but is low in the scale as to behaviour at sea.

The "Ocean" ranks before the "Caledonia" as a sea boat; in other respects both ships are alike.

The "Hector" is inferior to all as to the offensive and defensive power, but ranks higher as a sea boat, so far as rolling is concerned, than the three last-named ships.

The little "Pallas" cannot be compared with her gigantic companions. I have only further to add, that the iron masts and steel yards and topmasts seem to have answered well in every respect, and that an important economy will be found in a more general use of these materials instead of perishable wood.

The only other point of importance relates to the comparative advantages of four or two-bladed screws, and both the Admirals confirm the opinion that I have long held that on the whole, unless with very quick working engines, the four-bladed screw is the better instrument.

It causes much less vibration at the ship's stern; in slow working engines it has given greater speed to the same ship with much less slip, and greater economy of fuel.

Ships with the four-bladed screw, while under steam, steer better than with a two-bladed screw, and it is remarkable that those so fitted have not missed stays while others with two-bladed screws have done so.

It does not appear that any marked superiority in sailing attends the two-bladed screw, comparing, for instance, the "Hector" and "Ocean" (ships nearly alike); but it is also to be noted that the two best sailing ships in the fleet, the "Pallas" and "Research," had two-bladed screws.

So far as iron-clads are concerned, it would, I think, be a safe inference to draw from these reports, that it is not advisable to adopt the two-bladed screws unless in engines working over 60 revolutions per minute, more especially in wooden ships which are required to possess high speed.

Both the Admirals consider that under circumstances of heavy rolling a turret-ship would have very decided advantages over a broadside ship, and it is easy to show by a diagram that such is the case, because the diagrams can always place the turret-ship in the most favourable position for her qualities: this may not always be so easy to do in actual warfare; but, admitting all the admirals say on the subject, there still arises this consideration, the sea-going turret-ship has shown as much disposition to roll as her broadside consorts. Now, whether her gun is mounted in a turret or in a port on a ship's side, it is clear that it is only when either vessel is nearly upright on the top of the swell that the gun can be discharged with a prospect of striking the object aimed at. A ship, therefore, rolling from 12 to 15 times in a minute, will be in a position to discharge her artillery 12 or 15 times during each minute; but if it be taken into consideration that under these circumstances she rolls through arcs of from 20 to 30, the shortness of time during which the gun is horizontal, and can be discharged with any prospect of striking an object, becomes so apparent as to reduce the supposed advantages of the training derived from mounting the gun in a turret very considerably: the oblique fire which the turret ship is supposed to inflict on her opponent, is also the fire which is the most harmless to an iron-clad.

Again,

Again, except in the turret-ships designed by the Admiralty (designs not approved by the inventor), the nearness of the gun to the water has an important bearing on the probability of striking the object fired at, as the undulations of the sea, even when the ship is rapidly flying past the vertical position, must often completely interpose between the gun and the object aimed at.

The conclusion I should draw from these remarks would not be that there is no advantage whatever in a well-designed turret-ship carrying her guns high out of the water under circumstances of heavy rolling, if she were put into a good position in an encounter with a broadside ship, but that these advantages, in such turret-ships as we are acquainted with, are not altogether so great or so decisive as they might appear at first sight.

Moreover, it seems to me a sound conclusion to draw from these reports, that a naval engagement with iron-clads will seldom be attempted unless in a moderate sea.

I shall be able in a few days to make a report to their Lordships as to the structural strength or weakness shown by the respective iron-clads, after having been exposed for many days to heavy and continuous rolling.

(signed) *Robert Spencer Robinson.*

Conclusion.

Engagement between iron-clads improbable, except in smooth water.

Report on structural strength will be forwarded as soon as it can be procured.

NAVY (CHANNEL FLEET).

COPY of Admiral YELVERTON and Admiral
WARDEN'S REPORT on the TRIALS of the
CHANNEL FLEET in 1866; with the OBSER-
VATIONS of the COMPTROLLER of the NAVY
thereon.

(*Mr. Laird.*)

*Ordered, by The House of Commons, to be Printed,
29 March 1867.*

315

NAVY (CHANNEL SQUADRON).

RETURN to an Order of the Honourable The House of Commons,
dated 26 March 1867;—for,

COPY “ of the REPORT of the ADMIRAL in Command of the CHANNEL SQUADRON as to the TRIALS of the SHIPS comprising the FLEET under his Command, during the Year 1864; with any REMARKS of the COMPTROLLER of the NAVY thereon.”

Admiralty, }
30 March 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

— No. 1. —

(No. 81.—4 Enclosures.)

OBSERVATIONS on Performances of Her Majesty's Ships “EDGAR,” “BLACK PRINCE,” “WARRIOR,” and “DEFENCE,” during Passage from *Lisbon* to *Portland*, between the 27th February and 5th March 1864.

Sir,

“Edgar,” Portland, 14 March 1864.

I HAVE the honour to transmit, to be laid before the Lords Commissioners of the Admiralty, the observations of the Captains of Her Majesty's ships “Edgar,” “Black Prince,” “Warrior,” and “Defence,” on the performances of their respective ships at sea, during the recent passage from Lisbon to Portland, between the 27th February and 5th March 1864.

2. My impression is, that the iron ships did not sail so well, relatively with the “Edgar,” as on the passage from Plymouth to Madeira, in December, and that the cause was the growth of weed on the ships' bottoms.

3. The “Warrior,” on this passage, had always the advantage over the “Black Prince” when under sail only, which she had not when on the passage out; this may be accounted for by the difference in trim, the “Warrior” sailing 2 feet 10 inches by the stern, the “Black Prince” from 11 inches to 1 foot 10 inches; the “Warrior's” boilers were pumped out, the “Black Prince's” were not.

4. The sailing of the “Black Prince” and “Warrior,” as I remarked in my letter, No. 16, of 27th January last, was good, and with screws raised it enables them to keep company under sail only.

5. The winds experienced since leaving England have been generally aft; no very heavy sea has been experienced, though the force of wind has been sometimes 9; but I do not think these ships would scud well in a heavy gale with proportionate sea; I conclude this from two circumstances, that I am a little surprised to find the captains (excepting Captain Wainwright, who makes a slight allusion to the effect of a following sea) have not noticed in their reports:

1st. That the iron ships during the passage took in tons of water through the dead lights.

2nd. That on the 2nd March at 11.30 a. m. wind S. W., 9; course N. E. by N., speed 8.5 to 9 knots, I observed the “Warrior” broach to at right angles to her course; on asking by signal why she rounded to, Captain Cochrane replied, “Helm to port 10 minutes; ship did not answer helm.”

6. The recent passage was made nearly entirely under sail only, excepting by "Defence," which raised steam at night to regain ground lost in the day-time, and to prevent her being overpressed with canvass in endeavouring to keep station under sail.

7. The "Edgar" was under reduced sail always, and I consider the loss occasioned in regulating speed by the "Defence" is understated at 40 miles a day.

8. I observe that the iron ships in pitching appear to bury their long sharp bows so heavily weighted very deep and slowly.

9. There have been many opportunities during the various cruises, of seeing the great superiority the iron ships have over the "Edgar" in steaming; very little head-wind and sea will stop the latter dead even at full power, whilst the former, with half their boilers and much less consumption of fuel, scarcely feel the difference in weather.

10. Each class of ship should be supplied, I think, with a clinometer, or other instrument, for ascertaining accurately the pitching and rolling motion.

I have, &c.

The Secretary
of the Admiralty.

(signed) S. C. Dacres,
Rear Admiral Commanding.

Enclosure 1, in No. 1.

REPORT on Sailing and other Qualities of "EDGAR."

(No. 29.)

Sir,

Her Majesty's Ship "Edgar,"
Portland, 6 March 1864.

In reply to your memorandum of this day's date, I beg to make the following report as to the sailing and other qualities of Her Majesty's Ship under my command, as exhibited during the last cruise of the Channel Squadron.

2. Under steam the "Edgar" is a much more expensive ship than either the "Black Prince," "Warrior," or "Defence." On the 16th December 1863, under steam and sail, wind a-beam, force six, the expenditure was, "Edgar," 2 ton 15 cwt.; "Black Prince," 1 ton 16 cwt.; "Warrior," 1 ton 15 cwt.; and "Defence," 1 ton per hour, respectively. Nearly the same proportion held good on the 2nd and 15th January and 27th February, circumstances being similar.

On the 9th January, under steam alone, the proportion appeared rather more favourable to us, but the coal we were burning was decidedly superior.

3. The "Edgar" appears to roll slightly less than the larger ships, but more than the "Defence." On the 17th December, the day of the most motion, in the forenoon, with the wind and sea four points on the quarter, "Edgar's" maximum roll was 20° and 21°, "Warrior's" 27°, "Defence" 17°. In the afternoon sea the same, but wind right aft, "Edgar" rolled 24° and 25°, "Black Prince" 30°, "Warrior" 19°, "Defence" 22°. On these occasions the "Edgar" had not her top-gallant sails set, and sometimes had only her topsails; the large iron ships had all plain sail except royals; the number of oscillations per minute was not noted; I do not think we were better able to open our lower deck ports than they were, but the lower deck was always dry and comfortable.

Under sail, from being properly rigged, the "Edgar" has generally an advantage. In a head sea, as well as in steaming, the finer bows and long floors of the iron ships give them a great superiority. On the 7th January, going five to six knots against a short head sea, at the entrance of the straits of Gibraltar, wind E. by N., one point free, under courses, single reefed topsails, and top-gallant sails (the "Warrior" and "Black Prince" spared us courses and sometimes top-gallant sails) and on the same day, when hauled to the wind, they fore-reached on us 1½ miles an hour. Even the "Defence," with her miserable rig of spars and ribbons, seemed to have an advantage over us, though a favourable shift of wind gave us at the end of an hour 15 of a mile to windward.

I have, &c.

Rear Admiral S. C. Dacres,
Commanding Channel Squadron.

(signed) G. Phipp. Hornby,
Captain.

"Edgar," Portland, 14 March.

THIS Report includes remarks on the performances of the "Edgar" since her sailing from Plymouth in December last.

2. The returns of coal expended, forwarded in my letter of the 27th January last, No. 18, and of 9th instant, No. 65, give in detail the exact expenditure of coal in each ship under similar circumstances.

(signed) *S. C. Dacres,*
Rear Admiral Commanding.

Enclosure 2, in No. 1.

(Transmitting a Report on the Performance of the "Black Prince" during the last Cruise.)

Her Majesty's Ship "Black Prince,"
at Portland, 7 March 1864.

Sir,
I HAVE the honour to forward herewith my remarks on the performance of Her Majesty's Ships under my command on the cruise from Lisbon to England.

I have, &c.
(signed) *J. F. B. Wainwright,*
Captain.

Rear Admiral S. C. Dacres, C.B.,
Commanding Channel Squadron,
Her Majesty's Ship "Edgar."

REMARKS on the Cruise of HER MAJESTY'S SHIP "BLACK PRINCE" from *Lisbon to England.*

Date.	Course.	Wind.	Force.	Swell.	REMARKS.
27 Feb. 1864	N.W.	E.S.E. to E.N.E.	3	Slight from N.N.E.	2.45 p.m. left Lisbon under steam (draught 26 ft. 9 in. aft, and 25 ft. 10 in. forward.)
28 Feb. 1864	N.N.W., W.N.W., W., N. by W.	N.E., N., W.N.W.	5, 6, 4 to 3	Moderate from N.N.W.	8 a.m. less screw, ship rolling 5° to leeward and 3° to windward, pitching 2°; all ports open. In the afternoon closed wn. ports. 9.50 p.m. backed in succession, ship being 16 minutes in stays.
29 Feb. 1864	N.	N.W. to W.N.W.	3 to 4	Slight from N.N.W.	Ship rolling 4°; all ports open.
1 Mar. 1864	N.	W.N.W. to W., W.N.W.	4, 5, 6 to 3.2	Slight from Westward.	Ship rolling 3° to leeward and 1° to windward. 11 a.m. wind shifted from W. to W.N.W. with a squall; down all ports.
2 Mar. 1864	N.N.E.	S.W. to S.	3 to 8	Moderate from S.W.	Ship rolling 5° to windward 4° to leeward, increasing to 9° to 10°, pitching 3°; towards midnight wind and swell increased, the ship pitching 4°; all ports closed.
3 Mar. 1864	N.N.E.	S. to S.S.W.	7.8 to 5	Heavy from S.S.W.	Ship rolling 8°, pitching 4°; all ports closed.
4 Mar. 1864	N.E.	S. by W. to S. by E.	5.6 to 2	Long from S.S.W.	Ship rolling 5° to windward to 4° to leeward; all ports open.
5 Mar. 1864	N.E. by E. ½ E.	S.E. to E.	2 to 3	Long from S.S.E.	Ship rolling 4° to windward and 3° to leeward; all ports open. 2.30 p.m. anchored at Portland (draught 26 ft. 10 in. aft, and 25 ft. forward.

During that part of the cruise in which the squadron has been under sail, the wind has been for the most part fresh and fair; the sailing of the ships relatively to that of the "Warrior," appears to have somewhat fallen off, although there was no great difference between the ships; for on the 1st instant, when the "Warrior's" signal was made to pass the "Black Prince" under the same sail, she was unable to do so; and again on trying rate of sailing on the 4th, the "Warrior" gained but little until the propeller was lowered in pursuance of orders to raise steam for slow speed. The ship has been very easy, and as regards her steering qualities, steered with perfect ease, with four men at the main wheel, and two at Potter's apparatus, notwithstanding a swell running on the quarter, sufficiently heavy to touch the keel of the galley hanging astern.

(signed) *J. F. B. Wainwright,* Captain.

"Edgar," at Portland, 14 March 1864.

CAPTAIN WAINWRIGHT's allusion to the heavy following swell touching the keel of the galley, is the only notice of the effects of the sea on the iron ships when running; but on inquiry, I find that each ship took in much water through the stern ports; it was described to me as "taking in tons of water into the captain cabins."

(signed) *S. C. Dacres,*
Rear Admiral Commanding.

Enclosure 3, in No. 1.

(Relative to Passage from *Lisbon* to *Portland*.)

Sir,

Her Majesty's Ship "Warrior," at Portland,
6 March 1864.

I HAVE the honour to forward herewith, in compliance with your memorandum of the 24th ultimo, remarks on the passage of this ship from *Lisbon* to *Portland*.

On the 27th February left *Lisbon* under steam, in company with squadron; nothing of interest occurred; the amount of rolling and pitching of the ship was not worthy of record.

28th, at 8 a.m.; raised screw and proceeded under sail, oscillations of the ship very small, the wind and sea very moderate.

Time.	Pitch.	Rolls per Minute.	Maximum to Starboard.	Maximum to Port.
2 a.m.	2	4	2	2
4 "	3	5	2	3
6 "	1½	—	2	2
8 "	1	—	1	1
10 "	2	4	3	2
12 "	2	4	4	3
2 p.m.	2	3	2	2
4 "	3	3	2	2
6 "	3	3	3	2
8 "	5	5	3	2
10 "	3	4	3	2
12 "	3	3	3	2

29th and succeeding days, the oscillations of the ship every two hours are noted. Wind and sea as yesterday, with a following swell the crests about 500 feet apart.

Mean roll per minute, 3·8.

2 a.m.	3	3	3	3
4 "	—	—	3	3
6 "	1	4	3	2
8 "	1	4	2	2
10 "	1	—	2	2
12 "	1	—	2	2
2 p.m.	2	3	3	4
4 "	2	2	1	3
6 "	—	9	8	7
8 "	2	6	5	4
10 "	2	6	5	4
12 "	2	6	7	5

March 1st. Nothing of interest occurred; weather and swell as yesterday.

Mean roll per minute, 3·7.

2 a.m.	1	3	3	2
4 "	1	4	3	4
6 "	—	5	6	6
8 "	—	7	8	7
10 "	3	7	6	5
12 "	3	5	9	8
2 p.m.	2½	6	9	14
4 "	2	6	7	11
6 "	3	7	9	10
8 "	2	6	9	12
10 "	3	6	11	14
12 "	3 to 4	6	12	15

March 2nd. Sea and wind had increased; the pitching and sending of the ship also increased, but the rolls were moderate in number and amount.

Mean roll per minute, 5·8.

It may be a matter of interest to show the amount of sail on each ship to produce the same speed.

On

On the 2nd March, 9.50, it is noted as under:—

Course, N. by E. ; wind, S. by E. ; force, 6 to 8. Sea moderate. Speed, 8 knots.
Sail carried by , 2nd March 1864.

" Edgar."	No. of Square Yards.	" Black Prince."	No. of Square Yards.	" Warrior."	No. of Square Yards.	" Defence."	No. of Square Yards.
9.50 a.m. Double-reefed fore and mizen, and single-reefed main top-sails, foresail, lee clew of mainsail, and fore-topmast staysail.	2,948	9.50 a.m. Single-reefed fore and main, and double-reefed mizen topsails foresail, and fore-topmast staysail.		9.50 a.m. Close-reefed * fore and mizen, and single-reefed main topsail and fore-topmast staysail.	882 425 1,307 = 1,100 Ind. H. P.	9.50 a.m. Whole top and top-gallant sails, foresail, and fore -top-mast staysail.	
11.10 a.m. Double-reefed fore and mizen, and single-reefed main top-sails, foresail, lee clew of mainsail, and fore-topmast staysail.	2,948	11.10 a.m. Single-reefed fore and main, and double-reefed mizen topsails, main top-gallant sail, foresail, lee clew of mainsail, and fore-top-mast staysail.		11.10 a.m. Double-reefed * fore and mizen, and single-reefed main topsails, main top-gallant sail (lowered), and fore-topmast staysail.	1,202 425 1,627 = 1,020 Ind. H. P.	11.10 a.m. Whole top and top-gallant sails, foresail, starboard lower studsail, and fore-top-mast staysail.	

* The effect of the fair wind on hull and on the sails gave a speed of 8 knots, equal to the effort of 1,100 ind. H. P.; and considering the area of hull, masts, ropes, &c., to be equal to a whole main topsail, it would show that 1,307 yards of canvas employed at the angle, and with the force of wind mentioned, are equal to 1,100 ind. H. P., or that 1 yard of canvas equals 1.17 ind. H. P.

Course, N. E. $\frac{1}{2}$ N. ; wind, S. by E. ; force, 7 to 8. Sea moderate. Speed, 7.8 knots.

March 3rd. Sea had increased, yet the motion of ship was easy and the amount moderate.

Subjoined is a Table showing the amount of sail each ship had set when going similar speed.

Time.	Pitch.	Rolls per Minute.	Maximum to Starboard.	Maximum to Port.
2 a.m.	0	6	6	12
4 "	2	6	10	15
6 "	2	6	10	14
8 "	3	6	11	15
10 "	2	6	10	16
12 "	2 $\frac{1}{2}$	6	11	14
2 p.m.	2	7	16	16
4 "	2	8	17	15
6 "	3	7	15	17
8 "	3	8	15	17
10 "	1 $\frac{1}{2}$	7	18	15
12 "	2	6	8	11

6.6 roll mean per minute.

Course, E. $\frac{1}{2}$ N. ; wind, S. S. W. ; force, 6 to 7. Sea following aft on starboard quarter. Speed, 9.5 knots.

" Edgar."	No. of Square Yards.	" Black Prince."	No. of Square Yards.	" Warrior."	No. of Square Yards.	" Defence."	No. of Square Yards.
2.45 p.m. Double-reefed fore and main, and treble-reefed mizen top-sail, foresail, fore and main top-gallant sails, and fore topmast staysails.	2,875	2.45 p.m. Single-reefed topsails, fore and main top-gallant sails and jib, and treble-reefed mizen topsail.		2.45 p.m. Single-reefed topsails, fore and main top-gallant sails, and jib.	1,575 425 2,000 = 1,850 Ind. H. P.	2.45 p.m. All plain sail, with main topmast and top-gallant staysails.	

MEAN PITCHES per Minute:

" Edgar "	-	-	-	-	5 $\frac{3}{8}$
" Black Prince "	-	-	-	-	6
" Warrior "	-	-	-	-	5 $\frac{3}{8}$

MEAN ROLLS per Minute:

" Edgar "	-	-	-	7 $\frac{1}{5}$
" Black Prince "	-	-	-	6 $\frac{1}{2}$
" Warrior "	-	-	-	6 $\frac{1}{2}$

The apparent cause of the " Edgar " pitching so few times is due to the great length of swell which was quarterly ; a long ship and a short one would naturally pitch about the same number of times under these circumstances. " Defence " was some distance astern.

OBSERVATIONS.

8.30.—Raised screw propeller, wind north-easterly, fresh breezes and squalls, a swell coming up from the S.W. course, and distance made good at noon, N. 78° W., 105 miles, steel chain repaired.

1.50 P.M.—Set jib; ship steering very easily and quite dry below, except two small leaks in captain's store-room.

Midnight.—Coals expended, 6 tons 4 cwt.

29 February 1864.

Westerly Breezes.—Admiral made signal at 11 a.m. "Get up steam for slow speed." Permission "is given to use steam." Lowered propeller and at 11.40 admiral made signal, "Never mind station during the day;" "economise fuel in any way you like."

2 P.M.—Raised screw at 5.30. Admiral made the signal, "Use screw if necessary to keep company." Down screw, and steamed to keep station; engines working at intervals on 3rd grade of expansion.

Expenditure of coal very small, only 3 tons and 5 cwt. during the day.

Midnight.—Coals expended, 3 tons 5 cwt.

1 March 1864.

W.S.—Westerly breezes with heavy rain; at 7.10 raised screw; wind freshened; very squally. 11.30 heavy squall; carried away upper foretopsail yard; and (steel chain of jib-boom carried away again) jib-boom broke off by bowsprit cap.

Course, and distance at noon, N. 13° W. 108 miles.

P. M. Shifted jib-boom and topsail yard.

At 5.30. p.m. admiral made signal, "Any difficulty in keeping station, use screw now or at any time."

Kept company fairly till 10.30 p.m. Wind lighter. Down screw.

The ship steered very easily.

Midnight.—Coal expended for engines during the day, 2 tons 10 cwt.

2 March 1864.

Wind southerly.

Steaming to keep station. Raised the screw at 9 a.m., and proceeded under sail only till just before dark; wind very strong, and in the squall split a main topsail and top-gallant sail; carried away a lower studding sail yard. Noon.—Course and distance N. 3 W. 151. Able to keep company when the wind was very strong, and when the "Defence" could carry her sail, but directly the wind slackened, the other ships went ahead. Lowered screw at 5.30 p.m.; steamed till close to the flagship, then stopped, and (towing the fan was of course against the sailing) dropped astern of station; steaming up as requisite.

Midnight.—Coals expended during this day in keeping station, 9 tons 16 cwt.

3 March 1864.

Strong breezes; raised screw at 6 a.m.

Set lower studding sail and middle staysail, and top-gallant sails; wind squally; in studding sails; running from 7 to 9 knots an hour under sail till 5.40.

5. Flag-ship distant about six miles.

Lowered propeller and closed; used steam as requisite to keep station; running 10 knots under steam and sail.

Coals expended during this day, 15 tons 2 cwt.

4 March 1864.

Strong southerly breezes; running between 8 and 10 knots under steam and sail during the night. At daylight close to the flag-ship and tried to raise propeller.

180.

A 4

propeller;

SUGGESTIONS.

A stouter steel chain since made on board is desirable; and the meshes of the jib net should be put further apart to prevent them holding so much water with the pitch; this can be done when we anchor.

Whilst reefing.

OBSERVATIONS.

SUGGESTIONS.

pellor; but the worm wheel of the turning gear was injured, and its repairs occupied above three hours, during which time (the propeller being unlocked, and athwart the stern) the squadron went ahead from 6 to 7 miles; "Defence" running about 7 knots per hour.

9.20. Worm wheel repaired; raised screw to put in ports, and then proceeded under steam and sail; ship running under steam and sail between 10 and 11 knots.

Noon.—Course and distance made good.

4.5 P.M. Admiral made the signal, that the squadron were to raise steam for slow speed; 11.30 furled sails.

Coals expended during this day, 23 tons.

5 March 1864.

Light easterly winds and thick weather.

Noon.—Course and distance made good. N. 65° E., 199 miles.

Coals expended, 20 tons 6 cwt.

Total expenditure during the cruize, 111 tons 4 cwt.

Total distance run under steam and sail, 573 miles.

Total distance run	-	-	-	-	-	573 steam and sail.
Under sail alone	-	-	-	-	-	368 sail.
„ steam	-	-	-	-	-	112 steam only.
Total						1,053 miles.

Draught of water	-	-	-	-	-	23 ft. 5 in.
On anchoring	-	-	-	-	-	25 ft. 4 in.

(signed) *Augustus Phillimore*, Captain.

— No. 2. —

(Two Enclosures.)

OPINION of Rear Admiral *Dacres*, relative to the Sea-going and other Qualities of the different IRON-CLAD SHIPS in the CHANNEL SQUADRON.

Sir,

"Edgar," at Portsmouth, 5 November 1864.

I HAVE the honour to report, for the information of the Lords Commissioners of the Admiralty, the opinion I have formed of the different iron-clad ships in the Channel Squadron under my command, being the result of observations made during the summer's cruising of this and last year.

2. "Black Prince" and "Warrior."—My more intimate acquaintance with these ships, and the experience I have gained in the latter cruizes, more and more convince me of the correctness, in nearly every important particular, of my former reports on them, that as steamers for long voyages, or where the power to make rapid passages is of great importance, they are unrivalled, and that, even as at present rigged, their sailing qualities on a wind on long stretches, make them equal to keeping pace with vessels of the old class.

3. The great drawback to the many excellences of this class of vessel is, that their extreme length interferes with their handiness in many most important points.

4. Without entering into the time they take to wear or stay under sail, which defect is obviated by using steam to assist the manœuvres, and steam must always be kept ready for that purpose, whether in crowded waters like the Channel or in blockading an enemy's port, I will at once state that I have seen the great difficulty that is always experienced, even by skilful and practised officers, in taking up a berth in a tideway under steam; the risk incurred in putting into such harbours as Cork and Lisbon, except with an ebb tide, which arises from their great weight necessitating their being brought head to wind or tide before anchoring, and the positive danger that would attend entering any crowded harbour with a squadron of such ships, where there might be no room
either

either from the number of vessels at anchor, or the vicinity of shoals, for the ships to round-to, head to wind, to take up their berth.

5. I have, on two occasions, seen cables parted; this is caused by the immense weight of the ship; and recently the "Black Prince," obliged to anchor (for the purpose of swinging to wind) in the first open space, and afterwards to weigh to take up a clear berth.

6. Another and serious defect is, that they are dangerous in scudding; the "Warrior" on one occasion came up nearly eight points against the helm.

7. My observations of these vessels have been hitherto in circumstances of comparatively moderate weather, of their probable qualities and behaviour in a heavy gale. I am not inclined to think highly rolling 52° with a very quick motion (as I believe the "Warrior" did on her passage to Lisbon, in January 1862) is a severe trial for any vessel, though, in justice to the contractors, I must say that in general weather they are remarkably steady, and only in a really heavy sea would they show these uneasy propensities.

8. Their length and want of buoyancy, even with their unarmoured ends, subjects them to shipping water through the stern cabin windows in circumstances of wind and sea, when in a wooden vessel no one would think of putting in a dead light. This fact, and the undoubted superiority in buoyancy of these light-ended ships over the "Hector," "Prince Consort," and "Research" classes, makes it a question for very serious consideration, whether any of our iron-clads that may be required for service beyond that of block ships in the Channel should be completely armour-plated forward and aft except by a belt at the water-line.

9. Without a belt their efficiency as fast chasing ships is considerably lessened, for even with their great speed, they would, in chasing, be exposed for a long time to what ought to be a most destructive fire from the stern guns of a ship of two knots per hour less speed; as their bows lift, the shot would have a large space even below the water-line to act on.

10. It will be proved by the trials of the completely armoured ships of this class, how far the very important element of a high rate of speed will be affected by the additional weight of a belt; this might be counteracted to some extent by a reduction of the present weights at the extremities, but no alteration to give security from shot will be an advantage unless it can be made without sacrificing any of the present rate of speed.

11. It would, I think, be desirable that these ships, if they will not bear an entire belt, should perhaps carry it partially and at their bow end.

12. If (as I have heard it rumoured it is intended to do) these ships are armed with a few of the 7 or 8-ton guns amidships, in lieu of their present armament, they will show all the worst defects of the box principle in vessels of 6,000 tons, which have cost nearly half a million. The farther from the extremity the guns are placed, the greater the defects resulting from their length must become.

13. As the speed of a steam fleet is only equal to that of its slowest ship, so the recent evolutions with ships of such different length and form have gone far to show that the rapid manœuvring of a fleet must be regulated by its longest ships, for the diameter of the circles described by "Black Prince" and "Warrior" being, say 1,000 yards at moderate speed, a fleet of which they form part must move in circles with a radius of 500 yards instead of about 250, which could be done by the vessels of the length and steering as readily under steam as the "Hector;" but to convince of the unhandiness of these vessels from their length with the present means in our power of steering ships, I need only add, that where other vessels require only to be two cables apart, the "Warrior" and "Black Prince" must be kept four cables.

"HECTOR."

14. The "Hector" is, I fear, the worst of the large class of iron ships, although the number of her guns in each broadside has been reduced. She is, I think, when complete with coals and other stores, far too deep to encounter heavy weather, as from her want of buoyancy in moderate weather in the Channel, the sea breaks most uncomfortably up her broadside, rendering the fighting of her

guns nearly impossible from the quantity of water which would be shipped if her ports were open, and would soon flood the decks, and if not battened down, penetrate below; she pitches very deeply, and is quick in rolling, she is iron-clad from the water-line upwards, which of course protects the men at quarters, but leaves exposed her most dangerously vulnerable part, the water-line, and this in a ship of her rolling capabilities, would make it easy to sink her; a fate more to be dreaded than the entrance of shells.

15. The "Hector" has no qualities as a sailing ship at present; on her passage from Portland to Spithead; on the 1st instant, her bearings became heated (this, I believe, has occurred before); she had to proceed under sail only, but would neither stay nor wear, though under a press of canvas and all sails set; this I consider the result of a faulty placing of her masts; I can on no other grounds account for it, or for her being beaten invariably under sail by the "Prince Consort."

16. "Defence" has improved considerably in her sailing qualities this year, owing in a measure to additional canvas, and also to alteration in her trim. The following abstract of her performances in three sailing trials show her relative position as a sailing ship:—

"21st September.—For two hours in a light breeze 'Defence' gained slightly on 'Edgar' and 'Black Prince.' She afterwards took the third place to windward.

"23rd September.—'Defence' again took the third most weatherly position in the trial on a wind, and was beaten only by 'Research' and 'Edgar' in an hour's run with wind on the quarter.

"27th September.—The trial on a wind this day, was perhaps the most decisive of the relative performances of the ships engaged. A strong steady breeze with but little sea, making a good press of canvas to be carried, indicated favourable results.

"'Defence' started to leeward of all ships except 'Hector,' but as she lost considerably soon after starting, through getting up in the wind, which obliged her to go on the other tack, then tack again, and she afterwards forereached, her position may be fairly taken as third on the list."

17. She has always been as handy in stays and in wearing as anyone could desire, and is in fact a safe vessel under all circumstances of such weather as I have seen her in. She can at all times be trusted with her screw up; under steam she is a serviceable good vessel, expending comparatively little coal.

18. She is a very healthy ship, and the smallness of her sick list, which seldom exceeds three per cent. of her crew, says much for her ventilation and internal arrangements.

19. For all varieties of general service, I prefer the "Defence" and "Resistance" to any of the iron-clads I have seen. The defects are the exposed stern and rudder; the first might be remedied so far as to prevent the lightest shot penetrating, cutting her wheel ropes, and injuring the head of her rudder on board. The wheel ropes are so led, that one shot would cut all parts.

20. She is like all the first iron-clads, vulnerable at the ends. Captain Phillimore suggests a filling in of cork as something to stop shot-holes, but I fear that in practice the cork would be forced out even by shot from guns of small calibre, which would certainly penetrate the comparatively thin iron of which she is constructed aft and forward.

21. I think that the "Defence" and "Resistance" class, armed with a belt of iron at the present exposed parts of the water-line, would be the least defective of the large class of iron-clads, and very fair models of something better to come as sea-going ships. She has the defect they all have of plunging deeply, notwithstanding her light ends, but an alteration of form might remedy that.

22. Her speed under steam has been improved greatly by recent alterations.

23. "Prince Consort." I consider this class invaluable for channel service as block ships, but from what I saw of the "Royal Oak" last summer, I prefer her to the "Prince Consort;" not having seen the ships together under similar circumstances, I do not speak with the confidence I otherwise should in comparing one with the other.

24. The

24. The "Prince Consort" is certainly the most animated.

25. Both are handy, though slow under sail.

26. Their steaming qualities in even a moderate sea are considerable, when their short, bluff, heavily weighted bows are considered. I am of opinion that every ship we have as yet built, if completely plated forward and aft, will make bad weather of any heavy sea in the Atlantic, when the sea is of so different a character to what is met in the Channel. I infer this from the fact that the "Warrior" has dipped both her bow and stern under water in a gale of wind, and from the heavy manner in which they roll and pitch.

27. The rolling of the "Prince Consort" class is increased by their greater weight; their fullness forward and aft gives nothing to bring them up, as in the long bowed fine run ships.

28. The ventilation of the lower deck of these vessels is a matter for serious consideration, and from their generally large sick lists it is a question whether the men ought to live on the main deck.

29. Not only the want of air, but the living out of the daylight, is prejudicial to the health of the crew; scuttles would remedy this in part, but if the present ships were to be used as block ships the strength of the crews would be reduced, and the men would not live so constantly on board; so I think to cut so many holes in their armour would be destroying unnecessarily much of their present invulnerability.

30. Her rudder is well hidden.

"RESEARCH."

31. This vessel is so much over-weighed that I believe she can never be a useful vessel, even in the Mediterranean. I do not state this solely from observation of her behaviour on the 14th September last, when there was more wind and sea than on any other occasion during the recent cruises of the Channel Squadron, though the maximum force of the wind did not then exceed a double-reefed top-sail breeze; with a moderate sea, and at the time I noticed her taking in most water, particularly over the gunwale before the battery and on the deck over the battery, she had single-reefed topsails and topgallant-sails, sailing close to the wind; but I was most struck on that and other occasions with the manner in which she rolled to windward, exposing her decks to be swept of everything moveable, as would certainly happen in a gale of wind; I have seen her since in a moderately fresh breeze (Force 6) (9 October), when signalled, to disregard keeping station and to use steam and sail as considered most suitable to wind and sea, make almost equally bad weather of it, wetting everyone on deck by heavy sprays, and Captain Wilmshurst was in that cruise nearly washed overboard from the deck of the battery.

The forecastle has, I believe, from this tendency to wet on the upper deck, been found most useful in the "Research."

32. Captain Wilmshurst has, I think, advised altering her rig, taking away topsails and courses, and confining her canvas to large fore and aft sails, with which proposal I do not agree, not only because I believe that in heavy weather she would miss the steadying power of her topsails, but a fore and aft trysail would be a dangerous sail with heavy seas breaking inboard.

33. The men informed me that on the upper deck they were constantly wet at sea.

34. Her sailing and steaming is indifferent; off the wind she is best: the result of the steaming and sailing trials with "Enterprise" and other ships has been reported in detail.

35. I have seen her guns worked and fired on several occasions; the battery has been much improved by removing the funnel and wheel, and turning a hatchway; but there is still a deficiency of room for the men to work and the guns to train, so much so that the guns are only fired at long intervals, and very seldom at another ship passing on the opposite tack; but that in a future vessel can be easily remedied.

36. The great defect of the plan of a box for the gun appears to me to be the number of points which are left for an active enemy of more speed to attack

with perfect impunity; a diagram of the training of the guns at once shows this. Copies of these, given to me by Captain Wilmshurst and Commander Rowley, are enclosed.

At a recent inspection at Portland, the "Frederick William," at two cables' distance from the "Research," could not have been struck from the gun on the after broadside port, or by the same gun when shifted to the stern battery port on the same side of the ship.

37. She might I think, be easily carried by boarding, and if the enemy once obtained possession of the battery decks, shells or lighted canvas thrown down the hatchway would carry the ship.

38. Clearing away the bulwarks for action takes too long a time. From the effect of a moderate sea on the port gate of the "Research" in the last cruise, I have no confidence in its power of standing the shock of a heavy sea.

39. The ship is very comfortable below, and the ventilation caused by the lofty passage through nearly her whole length to her engines is most excellent and necessary, as she has to batten down in very moderate seas.

40. Her sick list is small.

41. She is certainly short handed for the work to be done, both at sea and in harbour.

42. Her stowage of provisions and stores is good, and so I think is her officers' accommodation.

"ENTERPRISE."

43. In speaking of the larger iron-clads I have never intended to include the "Enterprise," for I believe her to be the best iron vessel yet built; and my opinion is, that with certain indispensable additions (which I will mention in a summary hereafter) vessels of 4,000 tons built on her lines, and with the same careful attention to interior arrangements, would be safer and far better for every purpose than any iron-clad we have afloat.

44. She is not of course weighted in proportion to any other armoured vessel we have seen, having only a belt at the water-line (and that tapers forward and aft), and a covering for her battery.

45. With what she does carry of armour and guns she is exceedingly buoyant, steams and sails fairly, though I think she should do better under canvas with the "Edgar," as without the use of her square mainsail, which is sometimes not easily managed, she is obliged in squadron sailing to use steam, and I think a vessel of her class should beat any line-of-battle ship under sail only.

46. I believe her fore and main yards would be improved (as Commander Rowley recommends) by having more spread, and being made stouter, or strengthened by battens.

47. I recommended an alteration in her bowsprit, which has been ordered; but these are trifling modifications of what is a very good rig for the ship.

48. I have not seen "Enterprise" in bad weather, so I cannot speak to her behaviour; it is not fair to compare her with the "Research" and other heavily weighted ships such as "Hector" or "Prince Consort," in such weather as we have experienced in the recent cruises; but there is no doubt that the "Enterprise" was quite dry during the whole time.

49. Her stowage is good; she is well ventilated, and berths officers and men well.

50. At present she is not healthy, but shows a sick list large beyond the average proportion. This I can only attribute to the rapid and frequent changes of temperature in the iron, which, being unlined, causes on the lower deck a variation of probably many degrees under the influence of sun and rain.

51. She is well fitted for any service she may be sent on, excepting that the space in which she has to fight her guns is small. The Armstrong guns now in the foremost ports on each side cannot be trained beyond a point abaft the beam without recoiling against the funnel, which they have damaged slightly in two places; even if the funnel was removed there is not space in the box for the men to work or to train the guns.

52. There is the same large space of impunity as in the "Research," on which a vessel could take up a position; and indeed it seems to me that the box principle, without a gun forward or aft, either in a turret or on a turntable with a half shield, will be always exposed to fire without the possibility of returning it.

53. I cannot

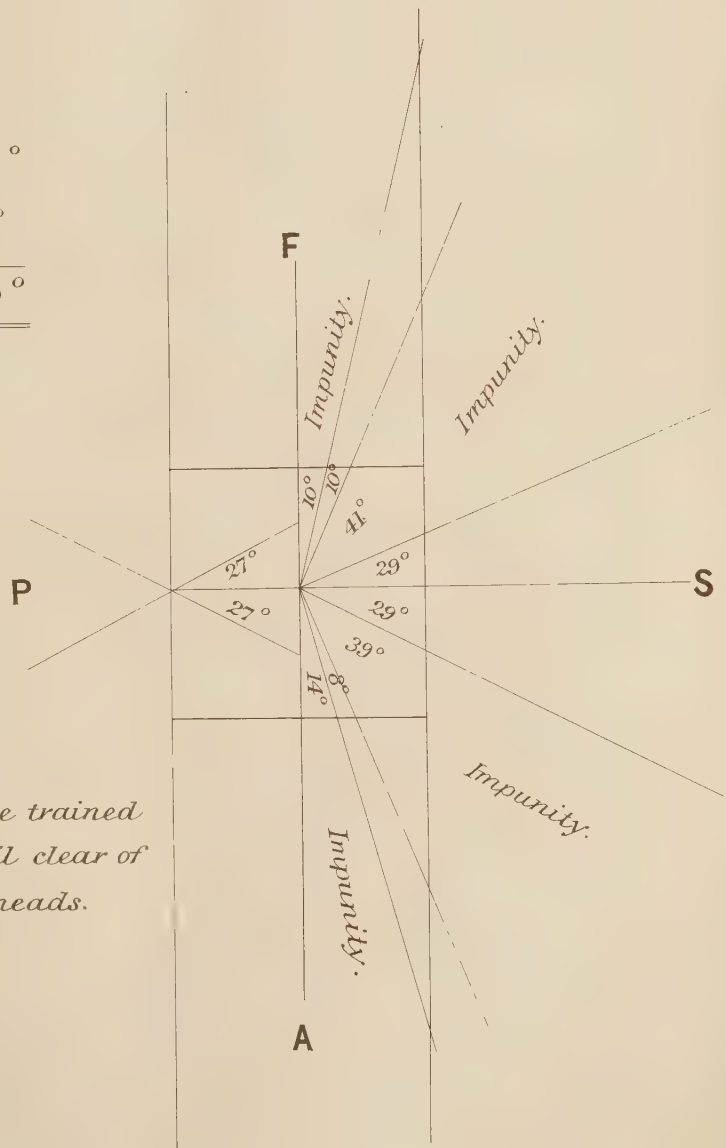
ENCLOSURE I IN Nº2.

H. M. S. "RESEARCH."

Angles of Training.

Impunity..... 104°
Punity..... 76°

 180°



*When the Guns are trained
 27° they will recoil clear of
the Battery Bulkheads.*

ENCLOSURE 2 IN Nº2.

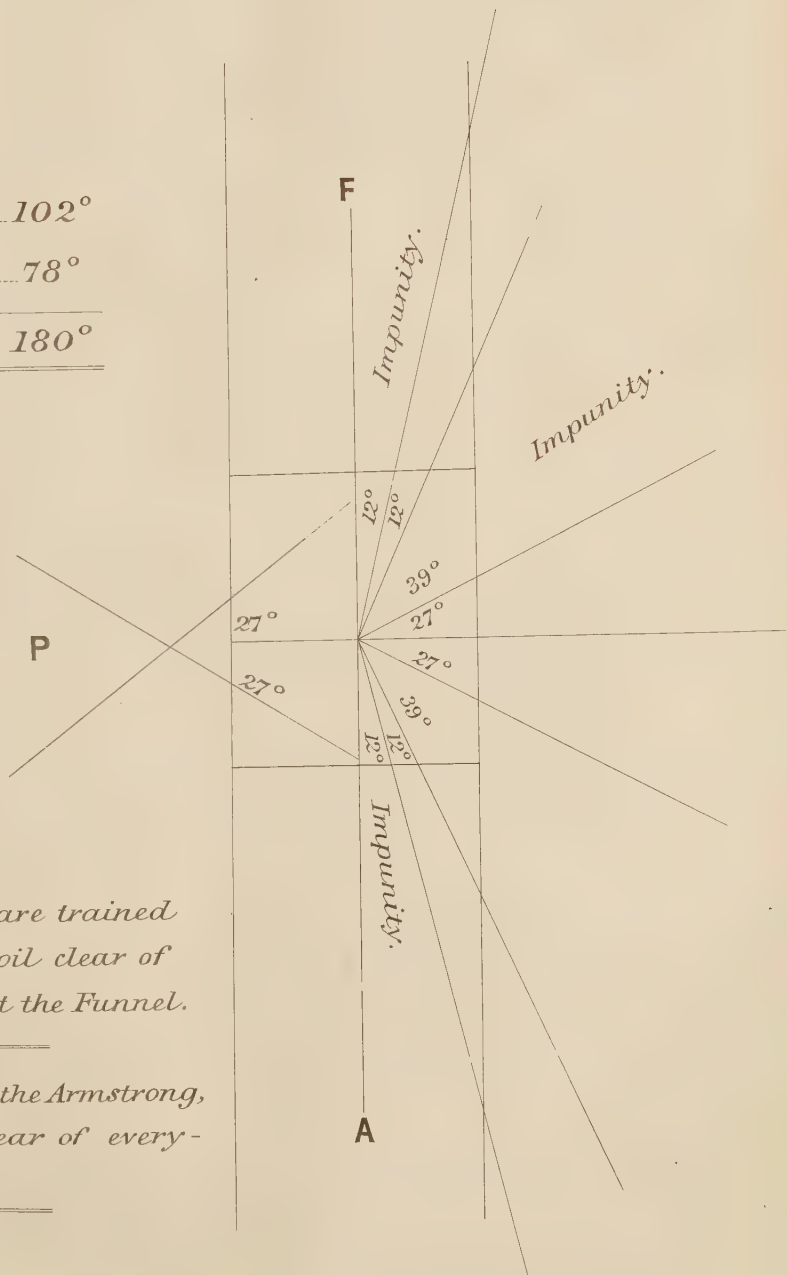
H. M. S. "ENTERPRISE."

Angles of Training.

Impunity 102°

Purity 78°

180°



When the Guns are trained 27° they will recoil clear of everything except the Funnel.

Any Gun except the Armstrong, would recoil clear of everything.

53. I cannot conclude these remarks without alluding to the capital mode of construction of this ship. Her rudder is completely hidden and safe from shot, and it acts upon the ship remarkably well; the diameter of her circle of turning at full speed (9.5 knots) was a little under 300 yards, and in running before a fresh breeze and rising sea I remarked that she carried her after-scuttles out.

54. The fighting bolts have been so much strained by the recoil that they are got in with difficulty.

55. As a summary to these observations, which have little to recommend them beyond their being an unbiased opinion formed after some little acquaintance with iron-clads at sea, I would draw attention to the following conclusions: I am fully persuaded that a belt below right round a vessel extending considerably above and below the water-line, is of the first importance in all ships to be built. That the box plan of "Research" and "Enterprise," if extended to large ships, will be the best plan for carrying a certain number of broadside guns of the largest calibre that can be worked and trained in a port of moderate size; but broadside guns in the boxes will not suffice to protect the unarmed ends, and it is indispensable that they should be supplemented by others, and for this purpose I propose guns forward and aft in cupolas or on turn-tables.

56. The mechanical means for the carriage for these broadside guns, and for fitting the port must be diligently looked for. This sort of battery must of course be clothed with armour that will keep out such shot as an enemy's ship will carry, at least at all but very short ranges, for I do not abandon the idea that vessels only weighted with a belt, a plated midship battery, and the cupola, or turn-table guns forward and aft alluded to above, can and will be constructed of speed sufficient to choose their distance with the majority of opponents.

57. To clothe vessels with complete armour renders them unsafe in bad weather, and as I have already stated, yet cannot too often repeat, sacrifices the all important element of power, their speed.

58. To remedy the effects of the plunging of iron-clad vessels under their weights, they should have a light forecastle, which would save much water going below; these are adopted in nearly all ocean steamers.

59. The plan for carrying water off the main and upper deck adopted in the "Enterprise," which has been recommended by many officers in command, viz., a hollow iron watercourse fitted close to the water-ways on both decks, should be placed in all new ships, nothing would be more useful for carrying off water into either sluice-pipes or scuppers, for it must be borne in mind that in opening ports, even for exercise, a large quantity of water is shipped from the sea, washing up the sides in consequence of the want of buoyancy, in action the decks would be flooded, and from the ship not lying over, it does not run to leeward, but dashes over coamings and down hanging scuttles. This induces me to advocate the ports being in one piece, so that the guns may be fought as in lower-deck exercise.

60. Not only must some plan of carriage and port be found for working the much heavier guns, we shall be forced to fight on the broadside, but some strengthening is required to stand the recoil. Even with the 6-ton guns the fighting bolts in the "Enterprise" are strained so as to make it difficult to get the after-bolts in and out.

61. The intricate system of compartments which is built in most of the iron ships, will be found faulty from there being no means of letting the water run aft or forward to where it can be pumped out without flooding the compartment it passes through; this might be remedied by a large main being laid down fore and aft.

62. As the heavy weights of the iron-clads make them roll considerably, and thus expose their upper decks to shot, some defence might be afforded by curving the deck over the battery.

63. More security should be given to the open space of the battery hatchway, for a shell bursting in or over it would unman the ship, and an enemy in possession of the roof would soon bring those inside to terms.

I have, &c.
(signed) S. C. Dacres, Rear Admiral.

— No. 3. —

The IRON-CLAD SHIPS of the CHANNEL SQUADRON.

REMARKS on Admiral DACRES' REPORT.

Admiralty, S.W., 19 November 1864.

THE valuable Report of Rear Admiral Dacres on the relative sea-going and other qualities of the different iron-clad ships in the Channel Squadron will no doubt receive their Lordships' serious consideration; but as some of the conclusions he has come to would, if followed out, lead to serious mistakes in construction, I think it necessary to point out several matters which will, I hope, considerably modify the judgment he has formed upon the iron-clads generally.

Admiral Dacres, in paragraphs from 3 to 8, describes the unhandiness of the "Warrior's" class, owing to their great length; and he considers them dangerous owing to their want of buoyancy, even, as he says, with their unarmed ends.

The great length of these ships is undoubtedly a disadvantage in rapid manœuvring, and must be taken as a defect which, if not counterbalanced by some very excellent quality, would justify a condemnation of the design.

Whether the recognised qualities of these ships are such as to balance this known disadvantage is a point about which there may be some difference of opinion. I will briefly recapitulate them, as it appears that Admiral Dacres has scarcely given them sufficient prominence. These are—

The greatest speed yet attained by any iron-clad of any construction at home or abroad: The greatest height of port out of the water yet obtained in any single decked iron-clad: The power of carrying 26 of the heaviest guns under the protection of armour-plates, at such a distance from each other as to render it quite easy, as far as space is concerned, to work the heaviest guns.

And the power of carrying 1,000 tons of coals, besides stores and provisions, and water for 700 men and upwards.

These valuable qualities of the ship are to be set off against her great length, that length which makes her unhandy.

Again, it is the general lowness of these ships, and not strictly speaking their want of buoyancy, that causes their extremities to be sometimes dipped into the water; for if the same height had been given to the upper works of these ships as is given to ordinary frigates in relation to their length, they would have been about 34 feet out of water instead of 22. No dipping would then have taken place, but the additional weight given by this height, and its resistance to the air when passing through it at a rapid rate would have immensely lessened the speed.

I am not disposed to undervalue the remarks Admiral Dacres has made on the dipping of the "Warrior's" stern, on her rounding-to while scudding, against her helm, or on his general distrust of the sea-going qualities of this class of ship.

It may be that they are not as good sea boats as ordinary screw line-of-battle ships; but I have, while in command of such a ship, experienced more than once all the discomforts and risks referred to by Admiral Dacres; and in the gale of wind of 20th September 1861, encountered by the Channel Fleet, composed of screw line-of-battle ships, off the coast of Ireland, several of them behaved a great deal worse, and did themselves more damage, than anything which the iron-clads have yet done; all of which, however wet and uncomfortable, have been remarkably free from serious accidents, loss of boats, strains, and injuries to their hulls.

The most serious, and indeed to my mind the most vital defect of the "Warrior's" class, one which absolutely forbids that the design should be repeated, is the one adverted to in paragraph 9, the want of an armour-plated belt at the water-line round the bow and stern.

And, with reference to paragraph 10 of the Admiral's Report, I do not doubt that something of the "Warrior's" speed, stowage, and good sea-going qualities will have been sacrificed in the "Achilles" for the sake of the armour-plated belt; but I believe that this sacrifice is judiciously made, although Admiral Dacres expresses a contrary opinion; on referring to which, however, it would seem inexpedient, even from his point of view, to adopt the suggestion
in

in paragraph 11, that is, to give a partial belt to these ships, "Warrior" and "Black Prince," round the bows.

With reference to arming these ships with heavier guns in the centre of the battery, as referred to in paragraph 12, I do not understand how any disadvantage in the use of heavy guns can arise from what Admiral Dacres calls the box principle.

Some guns, though perhaps not the heaviest, would remain at the extremities of the box, in the same position as before. There would be neither more nor less "points of impunity than at present." Notwithstanding Admiral Dacres' unfavourable opinion of ships armour-plated from end to end, it must be evident to everyone that it is only possible to obtain an exemption from points of impunity by placing guns on a battery armour-plated all round.

Paragraph 13 refers to the already admitted disadvantage in manœuvring caused by the length of these ships.

With reference to paragraph 14, I think that Admiral Dacres' opinion of the "Hector" is on the whole correct, and that, for general purposes of cruising at sea, she will not prove a satisfactory ship, though her fighting qualities would be formidable.

I beg leave to refer their Lordships to the submission made by Sir B. Walker, on the 10th January 1861, relative to this class of ship, in which, giving his reasons, he says, "ships so weighted will hence, it is believed, be regarded as unsuited for general service."

I have, however, no doubt that in the Mediterranean, the Baltic, or the West Indies, this class of ship will be capable of excellent service, and that, with common care, there would be no risk in sending them to these stations.

With reference to the placing of the "Hector's" masts, and to her possessing no qualities as a sailing ship:

The area of the sails of the "Hector" is the same as that of the "Prince Consort's" class and the "Defence's" class:

The height of the centre of effort of the sails above the load-line is in the "Hector" 70·4 ft.; in the "Prince Consort" 69·73 ft.; in the "Defence" 70·95 ft.:

And the distance of the centre of effort before the centre of lateral resistance is in the "Hector" 19·6 ft.; in the "Prince Consort" 19 ft.; in the "Defence" 19·1 ft.

Some other cause than the placing of the masts must be found, therefore, for the bad sailing qualities of the "Hector," which ship does not raise her screw, and would, therefore, generally compare very unfavourably under canvass with ships that have the power of doing so.

Admiral Dacres, in several paragraphs, refers to the good sailing qualities of the "Defence" and "Resistance," and ends by preferring them to any of the iron-clads he has seen. This preference appears to me to be in a great measure owing to their handiness under sail, and to their sailing well; the latter quality is of course partially due to the power they possess of lifting the screw, but it is one which every maritime power in the world has sacrificed for the sake of other advantages.

I cannot suppose that this opinion of the Admiral's will be shared by the Admiralty.

The "Defence" and "Resistance" have all the fighting defects of the "Warrior" and "Black Prince," the undefended extremities, and the exposed rudders; and they draw more water in proportion to their tonnage; they carry coal for a less period of consumption; their ports are nearer to the water; they carry fewer guns protected by armour-plating in proportion to their length; they are inferior in speed by more than two knots an hour; and the set-off against these disadvantages is, that they sail better, and are handier in manœuvring both under sail and steam.

I have carefully gone over the recorded observations of the rolling and pitching of these ships, as compared with the "Warrior" and "Black Prince," and I cannot see any substantial difference in favour of either class. In the trials recorded by Admiral Smart, between Lisbon and Madeira and off Lisbon, the "Defence" and "Resistance" rolled more than the "Warrior" and "Black Prince."

The Admiral suggests again, at paragraph 21, the giving these ships an armour-plated

plated belt at the water-line, but he adds, that an alteration of form would be necessary, and the suggestion is clearly impracticable for reasons he himself has furnished.

In the remarks Admiral Dacres has made relative to the "Prince Consort" and "Royal Oak," he says, that he is of opinion that every ship we have as yet built, if completely plated forward and aft, will make bad weather of any heavy sea in the Atlantic, and that may be perfectly true, so far as rolling about a great deal, and shipping a considerable quantity of water on the upper decks.

But that this contingency was not overlooked when these ships were converted will be seen by referring to my submission of the 8th May 1861, in which I stated of these ships, "That they will be at least sufficiently good seaboats to find their way to the Mediterranean."

That with common care and prudence these ships might be taken anywhere, running the ordinary risks of gales of wind with impunity, is certainly not disproved by anything that has happened to our own iron-clads, or to those of foreign nations.

He speaks of their excessive rolling in paragraph 27; but taking the observations he has recorded, I find on a comparison between "Edgar" and "Prince Consort" that on several days when they were together the difference was in favour of the "Prince Consort."

In fact, if these records can be trusted, which I own is extremely doubtful, the following is the result which they indicate:

Taking the four days when all the ships were together, and apparently doing the same thing, the mean of the extreme rolls recorded by each ship, and the number of oscillations per minute, stand thus:

	Mean of extreme Rolls.				No. of Oscillations per minute.	
"Warrior"	-	-	10.25	-	-	4
"Hector"	-	-	10.0	-	-	11
"Defence"	-	-	10.25	-	-	11.25
"Prince Consort"	-	-	11.75	-	-	11.25
"Black Prince"	-	-	11.05	-	-	15
"Edgar"	-	-	14.25	-	-	16

Excluding the "Warrior" from this comparison, as the instrument by which the angle of rolling was obtained and the number of oscillations recorded was different from that used in the other ships, it would not appear that the rolling of the iron-clads was excessive, compared with that of a ship of the old class. Admiral Smart also distinctly says in his Report on the iron-clads he had with him in 1863, that they did not roll and pitch more than the "Revenge."

The question of the ventilation of ships of the "Prince Consort" class has received their Lordships' attention; and removing the sick bay from the lower deck to the forecabin, and cutting scuttles through the ship's side will, in conjunction with the present ventilating arrangements, place the ships' companies of this class of ship in even a more favourable position than they would occupy in an ordinary frigate.

I do not think that the best use that could be made of such ships is to convert them into block-ships. On the contrary, after seeing the French and Italian iron-clads, which perform all the service required of them in the Mediterranean and elsewhere, I have no hesitation in saying that these ships are fully equal to them, and need not shrink from any comparison with any wooden iron-clads afloat.

Admiral Dacres has not once referred to the fighting qualities of this class of ship. He speaks of their being handy, though slow under sail; and says that their steaming qualities, even in a moderate sea, are considerable.

The power of the "Prince Consort" to steam against a strong gale was shown under very embarrassing circumstances last year, when with a large quantity of water in the hold and engine-room, she was brought over to the coast of Ireland, right to windward, against a very heavy gale of wind; and in the only trial of steaming at full power which the squadron have had, she was only beaten by the "Black Prince."

Every part of her is protected. Her guns are nearly two feet farther from centre to centre than those in the French iron-clads, and her ports are more
than

than two feet higher out of the water than the French ships of the "Gloire's" class, and than the Italian iron-clads I saw at Palermo.

And with all these facts before the Admiralty, I do not think that they will share Admiral Dacres' opinion, expressed in paragraph 57, "that to clothe vessels with complete armour, renders them unsafe in bad weather, and sacrifices their speed." The first assertion may possibly be a matter open to doubt; the second is disposed of by the fact that the "Prince Consort" is faster than any of the partially-armoured ships of equal length which we have constructed, and carries more guns at a greater height out of the water than they do.

The recommendation made by Admiral Dacres respecting forecastles is already acted upon, as also, in all the new ships, the recommendation in paragraph 59. On reading over carefully what Admiral Dacres has said of the "Research," I do not think that the slightest risk would be incurred in sending her to the Mediterranean, though it is clear she would, if caught in a gale of wind, be required to take every possible precaution.

In other respects he speaks of her as well ventilated, stowing well, having good accommodation, and a very small sick list, the discomfort of a wet deck not having apparently acted prejudicially on the health of her crew. Considering how much more she is protected than the "Enterprise," she will, I think, be found a very formidable war vessel. If her engines had been as good as those of the "Enterprise" she would have proved a fast steam ship for her size, as the result of her trial at the measured mile showed better results than the "Enterprise." In constructing these small armour-plated vessels, it never was supposed that some of the qualities of a perfect cruiser would not be sacrificed for the sake of giving them greater offensive and defensive power. The question to be experimentally decided was, how much of one set of qualities should be sacrificed for the other. The vessel in which the smallest amount of defensive power is found, namely, the "Enterprise," has the best qualities as a cruiser. The one in which the greatest amount of defensive power is placed, namely, the "Research," has the worst qualities as a sea-boat. In both, the size of the ships absolutely precluded the possibility of making a perfectly invulnerable ship, with a battery commanding all points of the compass, under shelter of armour plates.

The points of impunity which in certain positions an enemy might find in these two ships, are inherent to the very construction of the vessel. If more guns are required to be carried under armour-plates to prevent this point of impunity from existing, more size, and greater draft of water must be given, and more of the sea-going qualities of the cruiser must be sacrificed.

The readiness with which these vessels answer their helm, and the smallness of the space they require to manœuvre in, are mitigations of the evils attending the absence of guns outside the battery.

I do not deny that it is possible to suppose a position for those ships in which they could be placed at a disadvantage, even with a small sloop for an opponent; but so by a little ingenuity any vessel of any kind may be supposed to be in a position in which her powers of defence or offence would be neutralised. These are the hazards of war. Lord Nelson observed, "nothing is certain in a sea-fight above all others;" and I do not think that the objections made by Admiral Dacres on this head are of sufficient weight to overbalance the other qualities of the armament of these ships; either, or both of them, armed as they are, would assuredly drive off or capture any sloop or even corvette of the old class, and be of essential service in many parts of the globe in which that class of vessel is exclusively employed.

I have only one further remark to make relative to the box principle, and point of impunity, that is, that in every ship armed on the box principle, excepting these small iron-clad sloops, there are guns mounted sometimes on both decks which, though not under armour-plates, command the points of impunity so called. In the new ships, the bow guns which can be trained to cross the fire of the guns in the battery are under armour.

These facts are, I presume, not known to Admiral Dacres, but are of sufficient importance, with reference to his remarks on the subject, to be recalled to their Lordships' notice.

The remarks in paragraphs 56 and 57 are answered by what has been said above; and it is only necessary further to add that a heavy cupola (and it must be heavy, as the armour-plating being only a belt will not permit of the working

part of the cupola being above it), in the bow and stern of an armour-plated ship, would act almost as disadvantageously as the practice of wholly plating them, and far more so than the plan now adopted in the new ships, so far as depends on placing weights at the extremities of the ship. It would also entail this far greater evil, that the bulwarks of the ship must be made to let down, so that a forecastle is impossible, and that the whole circumference of the cupola resting upon and filling up the lower deck would deprive the ship's company of the air and space of which they have already not enough.

The objections to a half-cupola are equally strong, and though some saving of weight would of course follow on, suppressing one side of the cupola, the necessity which the plan entails of abolishing permanent bulwarks at the extremities, where they are most wanted, of carrying the working parts of the shield below the armour-plated belt for security, and of blocking up the air and space below, are sufficient reasons for believing that the present system is superior to the proposed one, and that Admiral Dacres' suggestions are impracticable.

The question of working heavy guns more easily is under consideration, and it is hoped that a plan now being tried under the superintendence of the chief constructor, will give every possible facility for rapid and even training, and for the general easy working of the heaviest ship guns.

In the recent iron ships, there will be found fewer compartments; as our practice in iron shipbuilding increases, daily improvements are being made in constructive points, as may be seen in the "Bellerophon."

Paragraphs 61 and 62 are quite in accordance with what is now doing, and proposed to do, in all future ships.

I must here close the observations on the general subject of Admiral Dacres' Report. I am much opposed to the general principles he has here and there laid down, because they appear to me not to be borne out by any fact that he has recorded, and to be founded on inferences and surmises rather than on observations. I have thought it my duty to point out two or three instances where, if his opinions or judgment should be deemed conclusive by their Lordships, serious mischief to the naval service would, as I believe, ensue; I refer particularly to his advocating as the best type of iron-clads, ships like the "Defence" and "Resistance;" to his remarks as to its being unsafe wholly to armour-plate ships; to the inconsistency with which he condemns what he calls a box principle of arming ships, and yet advocates partial armour-plating, which renders a box system absolutely necessary (if, as I suppose, he means by the box principle, the thwartships bulkheads enclosing the broadside battery), and to the extraordinary difference between the recorded results of the rolling of the respective ships, and his statement as to their behaviour as sea-boats.

But while pointing out what I conceive to be serious errors in his report, I desire to add, that I consider it an impartial and honest reflection of what has passed through the mind of an able, well-trained, long-practised seaman, worthy of all consideration, but by no means either conclusive or exhaustive with regard to the many subjects it refers to.

(signed) *Robert Spencer Robinson.*

NAVY (CHANNEL SQUADRON).

COPY of the Report of the Admiral in Command of the CHANNEL SQUADRON as to the TRIALS of the Ships comprising the FLEET under his Command during the Year 1864 ; with REMARKS of the COMPTROLLER of the Navy thereon.

(*Mr. Graves.*)

*Ordered, by The House of Commons, to be Printed,
2 April 1867.*

[*Price 8d.*]

180.

Under 4 oz.

RETURN to Two Orders of the Honourable The House of Commons,
dated 3 July and 9 August 1867;—*for*,

(ORDER, 3 July 1867.)

RETURN “ of all TRIALS of COAL at WOOLWICH, PORTSMOUTH, and DEVONPORT
DOCKYARDS, between the 1st day of April 1866 and the 31st day of March 1867 (in
continuation of Parliamentary Paper, No. 440, of Session 1866).”

(*Colonel Stuart.*)

(ORDER, 9 August 1867.)

“THAT there be added to the RETURN relative to COALS [ordered 3rd July] a
RETURN of all TRIALS of COAL at *Woolwich*, *Devonport*, and *Portsmouth*, from the
31st day of March to the 30th day of June 1867.”

(*Mr. Bruce.*)

Admiralty, }
15 August 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

Ordered, by The House of Commons, to be Printed,
16 August 1867.

WOOLWICH DOCKYARD.

RETURN of all TRIALS of COAL at WOOLWICH DOCKYARD, from the 1st April 1866 to the 30th June 1867.

DESCRIPTION OF FUEL TRIED.	Number of Trials from which the Average Results are deduced.	Pounds of Water evaporated to 1 lb. of Coal consumed, calculated from 100° constant Temperature of the Feed Water.	Cubic Feet of Water evaporated per Hour, calculated from 100° constant Temperature of the Feed Water.	Per-Centage of			S M O K E.
				Clinker.	Ash.	Both Clinker and Ash.	
NORTH COUNTRY COAL:							
Lambton's Wallsend - -	15	8·8	49·01	2·19	3·85	6·05	Black smoke.
Buddle's West Hartley - -	6	9·02	49·11	1·67	3·08	4·75	- - ditto.
Earsdon Hartley - - -	3	8·96	48·01	1·74	3·61	5·35	- - ditto.
Newton Hartley - - -	1	8·76	48·36	2·17	3·14	5·31	- - ditto.
North Country (no name), land engine.	1	8·95	49·70	2·71	4·45	7·16	- - ditto.
WELSH COAL:							
Ynysfaio Merthyr - - -	1	9·48	49·26	2·17	3·63	5·80	Light smoke.
Thomas's Merthyr - - -	1	9·69	49·71	1·86	3·64	5·5	- - ditto.
Dowlais Merthyr - - -	1	9·52	51·14	1·45	3·2	4·65	- - ditto.
Joseph's Upper 4 feet Merthyr -	1	9·36	49·26	1·75	3·2	4·95	- - ditto.
Merthyr Dare - - -	1	9·27	52·59	·95	4·	4·95	- - ditto.
Risca Rock Vein - - -	1	9·28	50·91	·93	3·28	4·21	- - ditto.
Tredegar Steam - - -	1	9·36	50·62	1·55	3·15	4·7	- - ditto.
Resolven - - - -	1	9·1	49·06	1·57	3·02	4·59	- - ditto.
Abercarn Black Vein - -	1	9·13	49·25	2·19	4·58	6·77	Black smoke.
Russell's New Black Vein -	1	8·84	49·25	1·99	4·01	6·	- - ditto.
Elled Vale - - - -	1	9·1	49·75	1·96	3·51	5·47	Blackish smoke.
Elled Vein - - - -	3	9·4	50·32	2·72	3·05	5·77	Black smoke.
Price's Tillery - - -	2	9·43	50·69	·96	2·52	3·48	One rather black and one light smoke.
Powell's Duffryn - - -	1	9·88	46·28	1·5	2·6	4·1	Light smoke.
EXPERIMENTAL:							
Insole's Merthyr - - -	4	9·5	52·83	1·46	3·26	4·72	Rather black smoke.
D. Davies' Ocean Steam Coal -	5	10·26	55·3	1·1	3·02	4·12	Light smoke.
Patent Fuel, Crown Preserved Fuel Company.	4	9·79	51·	2·18	5·5	7·63	- - ditto.
Llynvi Maestig - - -	4	9·42	51·66	2·3	3·56	5·86	- - ditto.

PORTSMOUTH DOCKYARD.

REPORT of TRIALS of COALS from 1st April 1866 to 30th June 1867, at HER MAJESTY'S DOCKYARD, PORTSMOUTH.

DESCRIPTION OF COAL.	Number of Trials.	Pounds of Water Evaporated to 1 lb. of Fuel Consumed.				Cubic Feet of Water Evaporated per Hour.		Per-centage of			Clinker.	Smoke.	Ash.		
		Calculated at the Temperature of				The Feed Water.	The Feed Water.	100 Degrees.	100 Degrees.	Ash.				Clinker.	TOTAL.
		The Feed Water.	100 Degrees.	The Feed Water.	100 Degrees.										
WELSH COAL:															
Navigation Steam	7	9.71	10.05	28.41	29.40	2.11	1.41	3.52	Slag shale	-	Light brown	-	Light.		
Abercorn Black Vein	4	8.33	8.67	27.37	28.76	2.78	2.48	5.26	ditto	-	Black	-	ditto.		
Nantmelyn Merthyr	2	7.96	8.21	27.68	28.55	3.18	1.71	4.89	ditto	-	Light brown	-	Dark.		
Oakwood Steam Coal (Trial)	2	8.61	8.93	26.74	27.76	2.31	2.13	4.44	ditto	-	Brown	-	Brown.		
Russell's Black Vein	5	8.30	8.65	27.59	28.57	2.35	1.74	4.09	ditto	-	Dark brown	-	ditto.		
Merthyr Dare	6	8.66	8.99	26.79	27.90	2.29	1.90	4.19	ditto	-	Light	-	Light.		
Thomas's Merthyr	2	8.24	8.59	25.05	26.24	3.01	3.28	6.29	ditto	-	ditto	-	Brown.		
Ebbw Vale	6	8.13	8.48	26.91	28.04	2.19	1.22	3.41	ditto	-	ditto	-	ditto.		
Velin Vach	2	8.63	9.09	27.76	29.24	2.14	1.79	3.93	ditto	-	Brown	-	ditto.		
Llangenneck	2	7.92	8.25	23.89	24.90	2.94	3.45	6.39	ditto	-	Light brown	-	ditto.		
Tillery Elled Vein	2	8.26	8.52	27.16	28.00	2.44	2.39	4.83	ditto	-	Dark brown	-	Light.		
Elled Vein	2	8.20	8.50	27.67	28.70	2.50	2.32	4.82	ditto	-	ditto	-	ditto.		
Price's Tillery	1	8.00	8.34	25.29	26.39	2.38	0.95	3.33	ditto	-	Brown	-	ditto.		
Cwmnanan Merthyr	1	8.44	8.74	28.00	29.01	2.96	2.86	5.82	ditto	-	Light	-	Brown.		
Ynysfaio Merthyr	2	8.40	8.75	27.99	29.16	2.56	1.97	4.53	ditto	-	ditto	-	Light.		
NORTH COUNTRY COAL:															
Lanbton's Wear	41	7.89	8.16	28.13	29.27	2.49	2.34	4.83	Slag shale	-	Black	-	Light.		
Buddle's West Hartley	7	7.13	7.38	28.43	29.77	2.20	2.09	4.29	ditto	-	ditto	-	ditto.		
Carr's Hartley	6	7.13	7.47	28.56	29.81	2.26	2.09	4.35	ditto	-	ditto	-	ditto.		
Buddle's Hartley	1	7.21	7.48	29.54	30.66	2.51	1.95	4.46	ditto	-	ditto	-	ditto.		

KEYHAM FACTORY.

REPORT of TRIALS of COAL at KEYHAM FACTORY between the 1st April 1866 and the 30th June 1867.

DESCRIPTION OF COAL.	Number of Trials.	Pounds of Water Evaporated to 1 lb. of Coal Consumed.		Cubic Feet of Water Evaporated per Hour,		Per Centage of			SMOKE.
		Calculated at the Temperature of				Clinker.	Ash.	TOTAL.	
		The Feed Water.	100 Degrees.	The Feed Water.	100 Degrees.				
WELSH COALS:									
Navigation Steam - - -	1	9·719	10·052	43·64	45·15	2·06	3·31	5·37	Light smoke.
Thomas's Merthyr - - -	2	9·544	9·799	40·95	42·04	1·97	3·5	5·47	ditto.
Nantmelyn Merthyr - - -	5	9·36	9·621	40·58	43·67	2·07	3·41	5·48	ditto.
Ynysfaio - - - - -	3	9·222	9·525	38·21	39·46	3·29	3·47	6·76	ditto.
Merthyr Dare - - - -	14	9·116	9·454	40·21	41·7	2·08	3·4	5·48	ditto.
Resolven - - - - -	44	9·062	9·418	38·52	39·99	2·46	3·58	6·04	ditto.
Ebbw Vale - - - - -	3	9·183	9·403	33·46	35·55	3·12	3·99	7·11	ditto.
Insole's Merthyr - - -	1	9·157	9·373	36·64	37·51	2·73	3·79	6·52	ditto.
Llangenneck - - - -	5	8·995	9·348	36·72	38·26	3·1	3·77	6·87	ditto.
Oakwood - - - - -	2	8·928	9·309	37·67	39·27	3·14	3·96	7·1	Dark smoke.
Tredegar - - - - -	1	8·928	9·293	36·09	37·56	2·38	3·64	6·02	Light smoke.
Abercarn Black Vein - -	13	8·911	9·252	35·49	36·85	2·84	3·8	6·64	Black smoke.
Birchgrove Graigola - -	24	8·922	9·237	37·08	38·96	3·81	4·12	7·93	Light smoke.
Glyncorrwg - - - - -	1	8·928	9·236	39·33	41·2	2·82	3·2	6·02	Brown smoke.
Russell's New Black Vein -	7	8·928	9·234	33·85	35·03	3·09	3·84	6·93	Dark smoke.
Risca Rock - - - - -	2	8·928	9·224	37·45	38·74	1·74	2·98	4·72	Light smoke.
Neville's Llanelly - - -	1	8·928	9·212	39·83	41·09	1·93	2·97	4·9	ditto.
Tillery Elled Vein - - -	1	8·928	9·163	36·36	37·32	1·86	3·72	5·58	Very dark smoke.
Gellia Cadoxton - - - -	19	8·742	9·07	37·02	38·41	2·95	4·03	6·98	Light smoke.
Elled Vein - - - - -	1	8·772	9·035	34·65	35·75	2·71	4·25	6·96	Black smoke.
Price's Tillery Elled Vein -	4	8·601	8·957	35·13	36·58	1·4	3·83	5·23	Dark smoke.
Llynvi - - - - -	3	8·489	8·8·9	34·07	35·44	4·07	4·96	9·03	ditto.
EXPERIMENTAL COALS:									
Patent compressed fuel made from the small coal of Dean Forest.	8	7·143	7·446	29·08	30·32	2·49	6·58	9·07	Dark smoke.
Gellia Cadoxton - - - -	4	9·099	9·435	35·73	37·05	3·38	3·44	6·82	Very little smoke.
Porthmaur Steam Coals - -	4	8·765	9·029	36·54	37·72	3·25	4·	7·25	Very dark smoke.
Nantyglo Steam Coals - -	8	8·791	9·09	34·37	35·55	2·9	3·76	6·66	Dark smoke.
Mr. Herring's Compressed Welsh Coal	7	8·928	9·237	36·15	37·4	2·22	4·08	6·31	Dark smoke.

C O A L S.

RETURN of all TRIALS of COAL at WOLWICH,
PORTSMOUTH, and DEVONPORT DOCKYARDS,
between 1st April 1866 and 30th June 1867 (in
continuation of Parliamentary Paper, No. 440,
of Session 1866).

(Colonel Stuart.)
(Mr. Bruce.)

*Ordered, by The House of Commons, to be Printed,
16 August 1867.*

561.

Under 1 oz.

NAVY (CORPORAL PUNISHMENTS).

RETURN to an Order of the Honourable the House of Commons,
dated 28 March 1867;—for,

RETURN “showing the Number of SEAMEN, MARINES, and BOYS in the First Class (for Good Conduct) who have been awarded CORPORAL PUNISHMENT by Sentence of COURT MARTIAL, from the 1st day of January 1862 (when the present Naval Discipline Act came into force) to this Date.”

Admiralty, }
8 April 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

RETURN showing the Number of SEAMEN, MARINES, and BOYS in the First Class (for Good Conduct) who have been awarded CORPORAL PUNISHMENT by Sentence of COURT MARTIAL, from the 1st day of January 1862 (when the Naval Discipline Act came into force) to this Date.

Seamen -	-	-	-	-	-	-	-	-	-	73
Marines .	-	-	-	-	-	-	-	-	-	29
Boys -	-	-	-	-	-	-	-	-	-	7
TOTAL	-	-	-	-	-	-	-	-	-	109

NAVY (CORPORAL PUNISHMENTS).

RETURN showing the Number of SEAMEN, MARINES, and Boys in the First Class (for Good Conduct) who have been awarded CORPORAL PUNISHMENT by Sentence of COURT MARTIAL from 1st January 1862 (when the present Naval Discipline Act came into force) to this Date.

(*Mr. O'Brien*.)

Ordered, by The House of Commons, to be Printed,
9 April 1867.

NAVY (EDUCATION AND RELIGIOUS DENOMINATIONS).

RETURN to an Order of the Honourable The House of Commons,
dated 12 February 1867 ;—for,

STATISTICAL RETURN “of the EDUCATION and RELIGIOUS DENOMINATION of PETTY OFFICERS, SEAMEN, and MARINES serving in the NAVY, for the Year ending the 31st day of December 1865, in 227 Ships, 10 Coast Guard Ships, and 5 Divisional Barracks of Royal Marines.”

Admiralty, }
12 February 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

STATISTICAL RETURN of the EDUCATION and RELIGIOUS DENOMINATION of PETTY OFFICERS, SEAMEN, MARINES, and Boys serving in the NAVY, for the Year ending 31 December 1865, in 227 Ships, 10 Coast Guard Ships, and 5 Divisional Barracks of Royal Marines.

	Total Borne.	In Hospital or on Leave.	Educational Acquirement reported.	Read.			Write.			Religious Denomination reported.	Denomination.			
				Well.	Indifferently.	Not at all.	Well.	Indifferently.	Not at all.		Church of England.	Presbyterian.	Other Protestant Dissenters.	Roman Catholics.
PETTY OFFICERS -	8,473	1	(a) 8,382	6,246	1,669	467	5,415	2,340	627	8,472	6,617	347	632	876
Per Cent. -	-	-	-	74·51	19·90	5·59	64·60	27·92	7·48	-	78·10	4·09	7·45	10·36
SEAMEN -	27,389	17	27,051	16,471	7,571	3,009	13,982	9,271	3,798	27,672	20,044	1,366	1,645	4,617
Per Cent. -	-	-	-	60·89	27·98	11·13	51·69	34·27	14·04	-	72·43	4·93	5·94	16·70
MARINES -	15,616	1	15,451	7,865	4,875	2,711	6,154	5,879	3,418	15,615	10,954	747	1,966	1,948
Per Cent. -	-	-	-	50·90	31·55	17·55	39·82	38·19	21·99	-	70·15	4·78	12·59	12·48
BOYS -	6,475	-	6,424	4,472	1,884	68	3,924	2,404	96	} - - Not included in the Returns.				
Per Cent. -	-	-	-	69·61	29·32	1·07	61·08	37·42	1·50					
TOTAL -	58,253	19	57,308	35,054	15,999	6,255	29,475	19,894	7,939	51·759	37,615	2,460	4,243	7,441
Per Cent. -	-	-	-	61·17	27·92	10·91	50·14	34·71	15·15	-	72·67	4·75	8·20	14·33

(a) Note.—The Educational Acquirements of 91 Petty Officers, 638 Seamen, 165 Marines, and 51 Boys had not been ascertained.

NAVY (EDUCATION AND RELIGIOUS
DENOMINATIONS).

STATISTICAL RETURN of the Education and
RELIGIOUS DENOMINATION of PETTY OFFICERS,
SEAMEN, and MARINES serving in the NAVY, for
the Year ending 31 December 1865, in 227 Ships,
10 Coast Guard Ships, and 5 Divisional Barracks
of Royal Marines.

(*Lord Henry Lennox.*)

*Ordered, by The House of Commons, to be Printed,
12 February 1867.*

NAVY (FIRST CLASS BOYS, &c.)

RETURN to an Order of the Honourable The House of Commons,
dated 21 March 1867 ;—for,

RETURN “ showing the Number of FIRST CLASS BOYS, BONÂ FIDE SEAMEN, COAST GUARD FLEET MEN, &c., who were Borne, Rated, Entered, or who left the Service between the Years 1860–61 and 1864–65 inclusive, continued to the present Time.”

Admiralty, }
30 April 1867. }

E. GIFFARD,
Pro Chief Clerk.

RETURN showing the Number of FIRST CLASS BOYS, BONÂ FIDE SEAMEN, COAST GUARD FLEET MEN, &c., who were Borne, Rated, Entered, or who left the Service between the Years 1860–61 and 1864–65 inclusive, continued to the present Time.

	1860–61.	1861–62.	1862–63.	1863–64.	1864–65.	1865–66.	1866–67.
Boys, 1st Class (exclusive of Ships' Stewards' Boys):							
Number of 1st Class Boys Borne in Her Majesty's Fleet and Coast Guard Service Afloat on the 1st day of April of each Year.	4,117	4,800	4,538	3,544	2,882	3,435	4,335
Number of 1st Class Boys Rated Seamen in Her Majesty's Fleet and Coast Guard Service Afloat during each Year.	1,747	2,864	2,980	2,517	1,899	1,470	Returns for the complete year not yet received.
Number of 1st Class Boys Entered into Her Majesty's Fleet and Coast Guard Service Afloat during each Year.	838	958	356	167	126	86	- ditto.
Number of 1st and 2nd Class Boys who left the Service from all causes during each Year (the Returns in Office do not distinguish 1st Class Boys from the others).	802	976	878	589	639	430	- ditto.
BONÂ FIDE SEAMEN:							
Number of bonâ fide Seamen Borne in Her Majesty's Fleet and Coast Guard Service Afloat on the 1st day of April of each Year.	32,504	32,792	28,685	25,399	23,968	22,375	21,097
Number of bonâ fide Seamen Entered into Her Majesty's Fleet and Coast Guard Service Afloat during each Year.	4,540	3,347	2,580	2,406	1,836	1,621	Returns as above.
Number of bonâ fide Seamen who left the Service from all causes during each Year.	5,999	10,318	8,846	6,354	5,328	4,369	- ditto.
COAST GUARD FLEET MEN ON SHORE:							
Number of Coast Guard Fleet Men on Shore Service (bonâ fide Seamen) Borne on the 1st day of April of each Year.†	3,152	3,176	3,410	3,702	3,782	3,933	3,745
Number of Coast Guard Fleet Men on Shore Service (bonâ fide Seamen) Entered during each Year.	203	305	421	339	448	108	Returns as above.
Number of Coast Guard Fleet Men on Shore Service (bonâ fide Seamen) who left the Service from all Causes during each Year.†	179	71	129	259	297	296	- ditto.

* Boys of 1st Class in Fleet only shown for the Years 1860–61, 1861–62, 1862–63, the Numbers in the Coast Guard Service Afloat not being distinguished in the Returns in office.

† These numbers include a small proportion of Ratings that are not of the pure Seamen Class, as the same are not distinguished in the Returns in office.

Admiralty, }
11 April 1867. }

J. Beeby,
Accountant General of the Navy.

NAVY (FIRST CLASS BOYS, &c.).

RETURN showing the Number of First Class
Boys, BONÂ-FIDE SEAMEN, COAST GUARD
FLEET MEN, &c., who were Borne, Rated,
Entered, or who left the Service between the
Years 1860-61 and 1864-65 inclusive, con-
tinued to the present Time.

(*Sir Harry Verney.*)

*Ordered, by The House of Commons, to be Printed,
1 May 1867.*

357

GREENWICH HOSPITAL ESTATES.

RETURN to an Order of the Honourable The House of Commons,
dated 15 March 1867;—for,

COPY “of the REGULATIONS (if any) made by the ADMIRALTY as to the DUTIES of the COMPTROLLER of the GREENWICH HOSPITAL ESTATES, and of the APPOINTMENT of the COMPTROLLER of, and SOLICITOR to the GREENWICH HOSPITAL ESTATES; stating also the SALARY or REMUNERATION paid to Mr. Grey, the Manager of a portion of the GREENWICH HOSPITAL ESTATES.”

Admiralty, }
15 March 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

RULES and REGULATIONS made by the LORDS COMMISSIONERS of the ADMIRALTY, for the Performance of the DUTIES of the Office of the COMPTROLLER of the GREENWICH HOSPITAL ESTATES.

Admiralty, 14 February 1866.

1. You are to keep an account of, and see that the revenues of the Hospital arising from land, houses, and property, are promptly collected, and report thereon each quarter to the Lords Commissioners of the Admiralty as respects the Greenwich Rents, and half-yearly as regards the Northern Estates, who will hold you responsible for the due collection of the rents, and empower you to recover the same by distress or otherwise.

To see that the revenues arising from land, &c., are collected.

2. You are to keep the Greenwich Estate Rent Register, as hitherto kept by the Clerk of the Cheque; from this you will prepare a rent roll, showing the arrears due on the last quarter's rent roll, and the rent due on the quarter under collection, and certify to the correctness thereof; and will forward the same within one month after the last quarter day due, to the Steward to collect the rents upon.

As to the rents of the Greenwich Estates.

You are at the same time to send notices to the several tenants, stating therein the amounts due from them, and directing them to pay the same to the Steward.

You are to report to the Admiralty (Accountant General's Department) within one month after each quarter, all arrears due from the tenants of these estates, forwarding at the same time the rent roll for the quarter.

3. You are to keep a Northern Estates Rent Register, as hitherto kept by the Clerk of the Cheque; from this you are to prepare every half year a rent roll containing every rent due on the 12th day of May and the 12th day of November, and certify the correctness thereof; you are then to forward it to the Receiver to collect the rents upon, the May rent roll in the month of September, and the November rent roll in the month of March. You are to receive each rent roll back from the Receiver, the May rent roll in the month of January, and the November rent roll in July. You are then to enter up in the rent ledger all receipts, and certify to the amount of arrears, and forward the rent roll to the Accountant General, certified by him to be correct.

As to the rents of the Northern Estates.

4. You are to inspect and report to the Admiralty as to the several properties the leases whereof are becoming shortly determinable, and to state dilapidations, if any, which have accrued, and those which the tenants should be called upon

As to falling in of leases of the Greenwich Estates.

to make good or pay for. You are to report to the Admiralty the fair rental which, according to your judgment, should be required for properties, the lease or leases of which have expired or are about to expire, and your reasons for the same.

- Lettings by lease or otherwise.** 5. You are to negotiate for the letting, by lease or otherwise, of the several properties of the Hospital, and when you have received an offer or offers, you are to report the same to the Admiralty, and obtain their authority for the granting thereof.
- The preparation of leases, &c.** 6. The Solicitor to the Hospital is to draw the leases connected with the Greenwich property, &c., and obtain the execution of them, as prescribed in Rule 15, relative to other deeds, and procure from the lessee a counterpart of every lease; the only charges to be received by him from lessees and others being the sums paid to the law stationer for stamps, parchment, and engrossing such leases and counterparts.
- Applications from tenants.** 7. You are to receive all applications from the tenants of the estates, and report thereon within 21 days to the Admiralty, with your recommendations thereon, and reasons for the same.
- Books, &c.** 8. You are to keep all such books as have been kept by the late Commissioners and Secretary, and which may be deemed necessary by the Admiralty, and have the same ready for inspection from time to time by the Secretary of the Admiralty, or any other person authorised by the Admiralty.
- To preserve all letters, &c.** 9. You are carefully to preserve all letters received on the business of the Hospital, and shall enter, or cause to be entered fairly, in a book or books to be kept by you for that purpose, copies of all letters sent by you on the business of the Hospital's estates, &c.
- Custody of Deeds, &c.** 10. You are to have under your charge all deeds and documents relating to the Hospital and the estates thereof, and shall not deliver any of such deeds or documents to any person whatever, without the directions of the Lords Commissioners of the Admiralty; and you shall, if so required by the Admiralty, give security for the due performance of your office, and the safe custody of the muniments committed to you, yourself in 1,000*l.*, and two sureties in 500 *l.* each.
- Inspection of Northern Estates.** 11. You are to visit and inspect the Northern Estates once every year, and oftener if it be necessary, and report generally to the Admiralty after each inspection.
- Insurance of Hospital property paid by the Hospital.** 12. You are to require the various Assurance Offices in which the Hospital property is insured, and the premiums paid by the Hospital, to forward their notices to you, when you shall satisfy yourself as to the accuracy of the same, and forward them to the Steward for payment. You are to keep in charge the several policies.
- Fire insurance on Greenwich Estates.** 13. You are, from time to time, to ascertain that the several lessees are duly performing the covenants of their leases by insuring their property in conformity therewith, and report annually to the Accountant General of the Navy the result. The insurance register book, hitherto kept by the late cashier, is to be handed over to the Comptroller.
- As to the payment of rent due from the Hospital.** 14. You are to require all notices for payment of rent due from the Hospital to be forwarded to you; you will then certify the correctness of the demand made, and request the Steward to make the payment, and forward to you the receipt for entry in the estate ledger.
- Preparation of all deeds, &c.** 15. The solicitor is to prepare all agreements, leases, and conveyances, and approve all deeds and documents on behalf of the Admiralty, and in order to obtain the execution of all such instruments by the Admiralty, you are to forward to their Secretary a separate letter upon each subject, and obtain an appointment with the Board for the execution of the instrument, and attend the Board accordingly.

By command of their Lordships,

C. Paget.

The Secretary of the Admiralty to Mr. *J. C. Lethbridge*.

Sir,

Admiralty, 25 October 1865.

I AM commanded by my Lords Commissioners of the Admiralty to acquaint you that they are pleased to appoint you to be Comptroller of the Greenwich Hospital Estates, with a salary of 500 *l.* per annum.

My Lords are also pleased to appoint you to be solicitor to conduct the legal business of the Hospital, at a salary of 500 *l.* per annum.

You will receive no fees of any kind as solicitor, beyond this salary, for any business conducted on behalf of the Hospital, and no bill for law expenses of any nature is to be sent to the Board.

You will not be debarred from continuing your private practice, but your time must be considered at the disposal of the Admiralty whenever required, and you are to attend personally at the office not less than three days a week.

The appointment of solicitor is to give no ground for a claim of any kind from any partner or partners with whom you may be associated.

No charges will be allowed on account of agency, travelling, or other expenses of any kind, for work done by you in your office of Comptroller, the duties of which will be stated in detail to you.

An office with one clerk, and if necessary, a subordinate clerk and a messenger, will be allowed.

Neither of these appointments is to give you any claim for compensation or retiring allowance, either on account of your removal by the Board of Admiralty, or from any other cause.

J. C. Lethbridge, Esq.

I am, &c.
(signed) *W. G. Romaine*.

THE Receiver of the Greenwich Hospital Northern Estates, Mr. C. G. Grey, was appointed under the 20th section of the 10th Geo. 4, c. 25, by the late Commissioners of Greenwich Hospital, on the nomination of the Lords Commissioners of the Admiralty, and his salary is 1,000 *l.*, with his official residence at Dilston near Carbridge, Northumberland, and 200 *l.* a year for travelling expenses.

(signed) *C. Du Cane*.

GREENWICH HOSPITAL ESTATES.

COPY of the Regulations made by the ADMIRALTY as to the DUTIES of the COMPTROLLER of the GREENWICH HOSPITAL ESTATES, and of the APPOINTMENT of the COMPTROLLER of, and SOLLICITOR to the GREENWICH HOSPITAL ESTATES; stating also the SALARY or REMUNERATION paid to Mr. Grey, the Manager of a portion of the GREENWICH HOSPITAL ESTATES.

(*Mr. Du Cane.*)

*Ordered, by The House of Commons, to be Printed,
15 March 1867.*

GREENWICH HOSPITAL.

RETURN to an Order of the Honourable The House of Commons,
dated 7 May 1867 ;—for,

RETURNS “of the ANNUAL INCOME of GREENWICH HOSPITAL, distinguishing the Sums Received by Mr. Grey, by the Accountant General of the Navy, the Paymaster General, or any other Person.”

“Of the Number and Class of the Present INMATES of the HOSPITAL, PENSIONERS, OFFICERS, MEDICAL STAFF, &c.”

“And of the STOCK SOLD OUT in pursuance of the GREENWICH HOSPITAL ACT, 1865, for Providing ANNUITIES to the OFFICERS of the HOSPITAL who have Retired, and of the Sum produced by such Sale; also, of the Names, Ages, and Service of the several Annuitants, with the Amount of their respective Annuities.”

Admiralty, }
15 August 1867.

JOHN HENRY BRIGGS,
Chief Clerk.

RETURN of the ANNUAL INCOME of GREENWICH HOSPITAL, distinguishing the Sums Received by Mr. Grey, by the Accountant General of the Navy, the Paymaster General, or any other Person.

SOURCE OF INCOME.	Amount in 1866-67.	By whom Received.	REMARKS.
	£. s. d.		
Dividends on Funded Property - - - -	81,917 10 6	Governor and Company of the Bank of England.	Paid to Her Majesty's Paymaster General, to credit of Greenwich Hospital Income Account.
Interest on Loans on Mortgage - - - -	4,243 12 6	Her Majesty's Paymaster General.	
Grant from Consolidated Fund in lieu of Merchant Seamen's Sixpences; 4 & 5 Will. 4, cap. 34.	20,000 - -	Her Majesty's Paymaster General.	
Greenwich Hospital proportion of Freight on Treasure conveyed in Her Majesty's Ships.	2,352 - 7	Through Accounts of Paymasters' of Her Majesty's ships, Navy Agents, &c.	Paid over to Her Majesty's Paymaster General's Greenwich Hospital Income Account, by Receivable Orders issued by the Accountant General of the Navy.
Miscellaneous Receipts - - - - -	86 6 4	Agent and Steward of Greenwich Hospital.	- - - Ditto.
Northern Estates (in Northumberland, Cumberland, &c.) :—			
	£. s. d.		
Gross Receipts - - - 50,912 14 10			
Abate,—Charges - - - 9,281 17 3			
	41,630 17 7	Mr. C. G. Grey, Receiver of the Northern Estates, and lodged to the credit of his Public Account at the Branch Bank of England at Newcastle.	- - - Ditto.
Property in Greenwich and the Isle of Dogs :—			
	£. s. d.		
Gross Receipts - - - 4,385 13 9			
Abate,—Charges - - - 592 8 11			
	3,793 4 10	Agent and Steward of Greenwich Hospital.	- - - Ditto.
Proceeds of Sale of Old and Unserviceable Stores -	1,509 6 5	Agent and Steward of Greenwich Hospital.	- - - Ditto.
	£. 155,532 18 9		

RETURN of the Number and Class of the Present INMATES of GREENWICH HOSPITAL,
PENSIONERS, OFFICERS, MEDICAL STAFF, &c.

Officers, Medical Staff, Clerks, &c., Household and Infirmary.	1 Barber. 1 Assistant barber. 1 Steward, medical mess. 1 Cook - - ditto. 1 Domestic - ditto. 2 Porters, infirmary gate. 2 Scrubbers. 15 Labourers, 1st class. 14 Ditto - 2nd class. 1 Lamplighter. 1 Gravedigger. 1 Cemetery labourer. 1 Extra ditto (temporary). 1 Stoker for kitchen. 1 Ditto, for laundries, painted hall and chapel. 1 Postman. 1 Yeoman of the chapel. 1 Chapel helper. 1 Chapel clerk and vestryman. 1 Scripture reader. 1 Superintendent of painted hall. 4 Yeomen of painted hall. 2 Governor's porters. 2 Patrols or orderlies. 1 Warehouseman, or foreman of stores, clothing, &c. 1 Master baker. 1 Foreman of bakers. 2 Journeymen bakers. 1 Engine driver. 1 Mattrass maker. 1 Washer and seamstress. 1 Warden at cemetery gate. 1 Market constable. 1 Clerk of the works (temporary). 1 Clerk and accountant. 1 Ditto - ditto - (temporary). 1 Foreman of works. 1 Engineer. 1 Plumber. 1 Carpenter. 1 Gasfitter. 1 Turncock.
1 Governor. 1 Captain superintendent. 2 Lieutenants. 1 Chaplain. 1 Inspector General of hospitals and fleets. 1 Deputy - ditto - - ditto. 1 Assisting surgeon. 4 Assistant surgeons. 1 Agent and steward. 3 Senior clerks. 4 Clerks. 1 Clerk and steward of infirmary. 1 First mate of victualling. 1 Second - - ditto. 1 Matron. 1 Organist.	
Establishment at Admiralty.	
Accountant General's Department : 1 Clerk (lent from Greenwich Hospital). 3 Writers. 1 Boy messenger.	
Medical Director General's Department : 2 Clerks (lent from Greenwich Hospital).	
Office of the Comptroller of the Greenwich Hospital Estate and Solicitor. 1 Comptroller of the Greenwich Hospital Estate and solicitor. 1 Senior clerk.	
Servants, &c., Employed on Wages. 2 Dispensary assistants. 1 Ward matron. 29 Female nurses. 1 Ward master. 50 Sick attendants. 1 Extra - ditto - (temporary). 1 Cook. 1 Assistant cook.	Metropolitan Police Employed at Greenwich Hospital. 1 Inspector. 3 Serjeants. 14 Constables.

Number of In-Pensioners at present borne - - - 364

Memo.—The military, medical, and civil branches of Greenwich household and infirmary, also the metropolitan police, have, in addition to the duties connected with Greenwich Hospital, to discharge corresponding duties in respect of the school of 800 boys.

RETURN of the STOCK SOLD OUT in pursuance of the GREENWICH HOSPITAL ACT, 1865, for providing ANNUITIES to the OFFICERS of the HOSPITAL who have Retired, and of the Sum produced by such Sale; also of the Names, Ages, and Service of the Several Annuitants, with the Amount of their respective Annuities.

N A M E.	Rank or Office in Greenwich Hospital.	Age.	Service in Greenwich Hospital.		Amount of Annuity Purchased under the Greenwich Hospital Act, 1865.			Amount of Stock transferred to the Commissioners for the Reduction of the National Debt, in Purchase of the Several Annuities.			R E M A R K S.
			Years.	Mths.	£.	s.	d.	£.	s.	d.	
Admiral Sir James A. Gordon, G.C.B.	Governor	82	25	2	1,639	-	4	7,685	19	-	First appointment as Lieutenant Governor, 6th July 1840.
Rear Admiral Sir Stephen Lushington, K.C.B.	Lieutenant Governor.	61	3	4	1,049	-	-	12,020	-	-	
Captain Mark H. Sweny - -	Captain -	82	11	1	664	9	4	3,115	18	6	
Captain William C. Aldham, C.B. -	Captain -	56	2	9	594	5	-	7,804	18	-	
Retired Captain Henry Parker -	Commander -	77	12	7	336	18	4	1,963	19	6	
Retired Commander John Pollard -	Lieutenant -	79	12	8	258	19	4	1,909	15	-	
Retired Commander William V. Lee -	Lieutenant -	59	12	8	498	9	4	6,067	2	-	
Retired Commander Thomas Williams -	Lieutenant -	72	7	6	398	9	4	3,018	1	6	
Staff Commander Manser Bradshaw -	Master -	71	10	7	398	9	4	3,145	1	4	
Staff Commander James Tomlin -	Master -	74	8	-	398	9	4	2,758	1	6	
Reverend J. K. Goldney, M.A. -	Chaplain -	67	26	9	468	9	4	4,330	3	6	
Reverend Edward Kitson, M.A. -	Chaplain -	63	20	-	468	9	4	5,023	10	-	
Edward Hilditch, M.D. - - -	Inspector General.	60	4	3	331	2	6	3,913	-	3	
Elizabeth A. Roberts - - -	Matron -	66	34	11	268	9	4	3,008	8	6	
Mary Hooper - - - -	School Matron	67	31	6	278	9	4	3,003	13	9	
George Tierney - - - -	Commissioner	65	34	2	907	9	4	9,046	19	9	
Vice Admiral Sir Peter Richards, K.C.B.	Commissioner	75	8	7	907	9	4	5,970	13	3	
Sir Richard M. Bromley, K.C.B. -	Commissioner	52	2	6	849	-	-	12,306	14	-	
John W. Nicholls - - - -	Secretary -	61	18	6	834	9	4	9,568	18	6	First appointment as Clerk of the Cheque, 19th March 1847.
Frederick Cleeve, C.B. - - -	Cashier -	44	4	8	694	5	-	11,993	17	6	First appointment as Steward, 7th January 1861.
John L. Jay - - - -	Assistant Secretary and Senior Clerk.	63	42	4	618	9	4	6,632	-	-	
George Deane - - - -	Senior Clerk -	66	50	11	474	-	-	4,547	10	6	
William Sivell - - - -	Inspector of Works.	61	33	3	568	5	-	6,516	4	-	First appointment as Labourer in Trust, 2nd July 1832.
Robert Aitken - - - -	Master Brewer	55	13	7	414	5	-	5,655	18	6	
James McTernan - - - -	Assisting Surgeon.	73	11	8	132	10	-	961	3	3	
Admiral Sir W. O. Pell, Knight -	Commissioner	78	16	6	600	-	-	3,260	18	6	
Bolton Corney - - - -	Chief Clerk -	81	46	-	370	-	-	1,735	1	9	
William H. Knowlden - - -	Chief Clerk -	75	50	-	450	-	-	2,960	15	9	
John J. Langley - - - -	Chief Clerk -	74	50	6	410	-	-	2,837	18	6	
S. R. Frowse - - - -	Chief Clerk -	79	50	9	450	-	-	2,275	18	6	
Thomas B. Stow - - - -	Senior Clerk -	63	42	7	403	6	8	4,325	1	-	
Edward Heaslop - - - -	Clerk -	70	10	-	30	-	-	246	11	9	
George Fennell - - - -	Clerk -	66	10	-	43	6	8	415	14	9	
John A. Anderson - - - -	Clerk -	65	25	11	125	-	-	1,246	4	-	
Thomas Williams - - - -	Clerk -	70	36	2	210	-	-	1,726	1	6	
Arthur Waller - - - -	Clerk -	69	33	-	200	-	-	1,711	-	-	
Reverend George Fisher, M.A. -	Chaplain and Principal of School.	72	28	10	500	-	-	3,787	2	6	Officers of Greenwich Hospital and School who were pensioned prior to the passing of the Greenwich Hospital Act, 1865, but who had Annuities purchased for them equal to the value of their former pensions.
Robert S. E. Gallon - - - -	Schoolmaster	58	17	-	62	10	-	780	3	6	
James A. Sharp - - - -	Schoolmaster	52	11	4	60	-	-	869	14	9	
John D. Atkinson - - - -	Schoolmaster	63	19	9	60	13	4	650	11	-	
F. R. Dawson - - - -	Schoolmaster	43	25	3	58	13	4	1,030	17	-	
James Harris - - - -	Organist -	68	22	1	20	3	4	179	8	6	
TOTAL - - - £.					18,505	5	2	171,415	14	10	

Money Value of the Stock transferred to the Commissioners for the Reduction of the National Debt, in purchase of the above Annuities - - - - - £. s. d.

152,574 11 4

Admiralty, Somerset House, }
29 May 1867. }

J. Beeby,
Accountant General of the Navy.

GREENWICH HOSPITAL.

RETURNS of the ANNUAL INCOME of GREENWICH HOSPITAL, distinguishing the Sums received by Mr. Grey, by the Accountant General of the Navy, the Paymaster General, or other Persons; of the Number and Class of the present INMATES of the Hospital, PENSIONERS, OFFICERS, MEDICAL STAFF, &c.; and, of the STOCK SOLD out in pursuance of the GREENWICH HOSPITAL ACT, 1865, for providing ANNUITIES to the OFFICERS of the Hospital who have Retired, and of the Sums produced by such Sale; &c.

(*Mr. Seely.*)

*Ordered, by The House of Commons, to be Printed,
16 August 1867.*

RETURN to an Order of the Honourable The House of Commons,
dated 14 March 1867;—*für*,

RETURN “of the Amount paid by MERCHANT SEAMEN to GREENWICH
HOSPITAL up to the Year 1834.”

YEAR.							AMOUNT.		
							£.	s.	d.
1822	-	-	-	-	-	-	23,122	6	8
1823	-	-	-	-	-	-	23,627	16	8½
1824	-	-	-	-	-	-	22,740	5	7
1825	-	-	-	-	-	-	23,040	8	7
1826	-	-	-	-	-	-	24,139	6	11½
1827	-	-	-	-	-	-	23,055	14	2
1828	-	-	-	-	-	-	23,683	1	1
1829	-	-	-	-	-	-	26,137	2	3½
1830	-	-	-	-	-	-	26,493	14	8
1831	-	-	-	-	-	-	24,809	16	11½

N.B.—The Papers printed for the House, No. 460 of 1827, and No. 156 of 1832, contain the above particulars. The Act 4 & 5 Will. 4, c. 34, repealing the laws relating to the Contribution out of Merchant Seamen's Wages towards the support of the Royal Naval Hospital at Greenwich, set forth that these sums have, upon an average, amounted annually to the sum of 22,000*l.*, or thereabouts.

Board of Trade,
22 March 1867. }

T. H. FARRER.

GREENWICH HOSPITAL.

RETURN of the Amount paid by MERCHANT
SEAMEN to GREENWICH HOSPITAL up to the
Year 1834.

(*Mr. Trevelyan.*)

*Ordered, by the House of Commons, to be Printed,
29 March 1867.*

NAVY (GUN VESSELS, &c.)

RETURN to an Order of the Honourable The House of Commons,
dated 16 May 1867;—for,

RETURN “of GUN VESSELS and GUN BOATS under 1,000 Tons IN COMMISSION and OUT of COMMISSION on the First Day of April 1867; stating in each case how and where Disposed of and Employed; what Condition they were in as to Repair on the First Day of April; and at what Date last Repaired; also, their Draught of Water, Tonnage, Horse-power, and Date of Building.”

Admiralty, }
4 June 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

RETURN of all the GUN VESSELS and GUN BOATS in the NAVY Afloat on the 1st April 1867.

GUN VESSELS IN COMMISSION.

Guns.	Tons.	Horse Power.	Name.	Station.	Date when last Repaired.	Date of Launching.	Draught of Water		Condition.
							Forward.	Aft.	
4	695	200	Star -	East Indies - - - -	October 1866 -	15 Dec. 1860	<i>Ft. in.</i> 11 4	<i>Ft. in.</i> 12 3	Serviceable.
4	695	200	Cormorant	China - - - -	February 1866, at Hong Kong.	9 Feb. 1860	10 10	11 9½	- ditto.
4	695	200	Serpent -	ditto - - - -	April 1866, at Hong Kong.	23 June 1860	11 0	12 5	- ditto.
5	695	150	Nassau -	Straits of Magellan (surveying service).	Not repaired since first fitted, August 1866.	20 Feb. 1866	11 10	12 2	Serviceable; condition good.
5	695	150	Sylvia -	China and Japan (surveying service).	Not repaired since first fitted, October 1866.	20 Mar. 1866	11 5	12 3	Serviceable; condition good.
4	680	200	Vigilant -	East Indies - - - -	March 1863 -	20 Mar. 1856	10 10	11 9	Frequently under repair; condition indifferent.
4	681	200	Assurance -	West Coast of Africa - -	April 1864 -	13 Mar. 1856	11 1	11 6	Frequently under repair; condition indifferent.
4	676	200	Sparrowhawk	Pacific - - - -	March 1865 -	9 Feb. 1856	11 4	11 9	Frequently under repair; condition indifferent.
4	682	200	Osprey -	China (ordered home) - -	December 1866, at Hong Kong.	22 Mar. 1856	11 2	11 11	Defective; not yet surveyed.
5	431	80	Steady -	North America and West Indies (ordered home).	Not repaired since first fitted, May 1861.	8 Feb. 1860	10 6½	11 10	Defective; not yet surveyed.
5	428	80	Nimble -	North America and West Indies	Not thoroughly repaired since first fitted, March 1861.	15 Sept. 1860	10 2½	12 5	Requires considerable repair.
5	428	80	Cygnat -	- ditto (ordered home) - -	Not repaired since first fitted, June 1861.	6 June 1860	10 6	12 6	Defective; not yet surveyed.
5	431	80	Penguin -	East Indies - - - -	Ordered to be repaired at Bombay, A. O., 29 August 1866.	8 Feb. 1860	10 8	12 0	With moderate repairs may be kept effective until 1870.
5	428	80	Espoir -	West Coast of Africa - -	November 1864	7 Jan. 1860	10 8	12 4	With moderate repairs may be kept effective until 1870.
5	427	80	Landrail -	- - ditto - - - -	January 1865 -	27 Mar. 1860	10 10	11 10	With moderate repairs may be kept effective until 1870.
5	426	80	Torch -	- - ditto - - - -	March 1865 -	24 Dec. 1859	10 8	12 2½	With moderate repairs may be kept effective until 1870.
5	430	80	Mullet -	- - ditto - - - -	May 1866 -	13 Feb. 1860	10 11	12 4	With moderate repairs may be kept effective until 1870.
5	428	80	Dart -	- - ditto - - - -	September 1866	10 Mar. 1860	10 9	11 8	With moderate repairs may be kept effective until 1870.
5	431	80	Snipe -	- - ditto (ordered home) -	Not repaired since first fitted, August 1863.	5 May 1860	10 8	12 3	Defective; not yet surveyed.
5	427	80	Ranger -	West Coast of Africa (ordered home).	January 1864 -	26 Nov. 1859	11 0	12 3	With moderate repairs may be kept effective until 1870.
3	301	80	Slaney -	China - - - -	December 1864, at Shanghai.	17 Mar. 1857	8 3	8 7	Frequently repaired; defective.
3	299	80	Algerine -	ditto - - - -	December 1866, at Hong Kong.	24 Feb. 1857	8 0	8 6	Frequently repaired; defective.

GUN BOATS IN COMMISSION.

Guns.	Tons.	Horse Power.	Name.	Station.	Date when last Repaired.	Date of Launching.	Draught of Water		Condition.
							Forward.	Aft.	
1 2	273 268	60 60	Speedy Pigeon	Channel Islands Channel Fleet	May 1866 Not repaired since first fitted, July 1866.	18 July 1860 7 June 1860	<i>Ft.</i> 8 <i>in.</i> 2	<i>Ft.</i> 8 <i>in.</i> 6	Serviceable. - ditto.
2	269	60	Cockatrice	Mediterranean	May 1866, at Malta.	26 May 1860	8 8	8 10	With moderate repairs may be kept effective until 1870.
2	272	60	Tyrian	- - ditto	Not repaired since first fitted, August 1864.	7 Sept. 1861	7 9	8 1	With moderate repairs will last until 1870.
2	270	60	Wizard	- - ditto	May 1866, at Malta.	3 Aug. 1860	8 2	8 6	With moderate repairs will last until 1870.
2 2	273 270	60 60	Trinculo Britomart	- - ditto North America and West Indies	January 1867 Not repaired since first fitted, April 1866.	15 Sept. 1860 7 May 1860	8 6 7 9	8 6 8 5	Serviceable. Good and serviceable.
2	270	60	Heron	- - ditto	Not repaired since first fitted, April 1866.	5 July 1860	8 0	8 4	Serviceable.
2	268	60	Cherub	- - ditto	Not repaired since first fitted, April 1866.	29 Mar. 1865	8 0	8 3	Good and serviceable.
2	268	60	Minstrel	- - ditto	Not repaired since first fitted, April 1866.	16 Feb. 1865	7 8	8 2	Serviceable.
2	270	60	Doterel	South-east coast of America	Not repaired since first fitted, October 1861.	5 July 1860	8 1	8 5	- ditto.
2	268	60	Linnet	- - ditto	Not repaired since first fitted, September 1865.	7 June 1860	8 5½	8 5	- ditto.
2	236	60	Stork	Portsmouth	March 1865	7 April 1855	6 8	6 8	Frequently under repair; condition indifferent.
2	235	60	Fancy	- ditto	July 1862	31 Mar. 1855	6 8	6 8	Serviceable.
2	234	60	Dapper	Dartmouth	September 1864	31 Mar. 1855	6 10	7 5	Fit for harbour service until 1870.
2	236	60	Redwing	Devonport (temporarily employed in Ireland).	November 1865	19 Mar. 1855	6 8	6 8	Has been frequently under repair; condition indifferent.
2	235	60	Clinker	Devonport	January 1862	2 April 1855	6 8	6 8	Has been frequently under repair; condition indifferent.
2	234	60	Griper	Queenstown	December 1860	11 Dec. 1855	6 8	6 8	Unserviceable; very rotten.
2	233	60	Highlander	- ditto	Not repaired since first fitted, November 1861.	29 April 1856	6 8	6 8	Unserviceable; very rotten.
2 2	236 236	60 60	Lark Sandfly	- ditto - ditto	March 1860 January 1862	15 Mar. 1855 1 Sept. 1855	6 0 6 8	6 9 6 8	Condition good. Defective.
2	236	60	Whiting	- ditto	Not repaired since first fitted, December 1865.	9 Jan. 1856	6 8	6 8	Condition good.
2 2	235 234	60 60	Goldfinch Erne	Coast Guard service at Greenock Coast Guard service at Leith	August 1860 July 1865	2 Feb. 1856 18 Feb. 1856	6 0 6 8	7 6 6 5½	Condition bad. Serviceable; under repair.
2	236	60	Louisa	- - ditto	June 1864	Dec. 1855	6 11	7 4	Under survey; condition bad.
2	236	60	Surly	Coast Guard service, River Humber.	Not thoroughly repaired since first fitted, April 1861.	18 Mar. 1856	7 0	7 6	Condition good.
2	235	60	Sepoy	Coast Guard service, River Humber.	6 February 1864	13 Feb. 1856	6 10	6 11	Indifferent.
2	235	60	Rainbow	Coast Guard service, River Humber.	January 1866	8 Mar. 1856	7 0	7 3	Condition good.
2	233	60	Hind	Coast Guard service at Portland.	March 1866	3 May 1855	6 8	7 8	- ditto.
1	236	60	Earnest	Coast Guard service at Portland.	Not repaired since first fitted, February 1867.	29 Mar. 1856	6 8	6 8	Serviceable.
2	235	60	Blazer	Coast Guard service at Foynes, River Shannon.	August 1864	23 Feb. 1856	6 9	7 0	Condition good.
2	235	60	Goshawk	Coast Guard service at Liverpool.	October 1860	9 Feb. 1856	6 7	7 8	Condition bad.
2 2	238 235	60 60	Magnet Pheasant	Coast Guard service at Harwich Coast Guard service at Southampton Water.	November 1866 Not thoroughly repaired since first fitted, November 1865.	29 Jan. 1856 1 May 1856	6 3 6 8	7 3 7 0	Condition good. Condition indifferent.
2	233	60	Raven	Coast Guard service at Kingstown.	Not repaired since first fitted, September 1866.	8 Mar. 1856	6 2	6 7	Serviceable.
2	236	60	Hyæna	Coast Guard service at Milford Haven.	October 1861	3 April 1856	7 6	7 10	Condition good.
2	236	60	Skylark	Mediterranean	July 1865	3 May 1855	6 7½	6 9	Serviceable.
2	236	60	Delight	North America and West Indies	July 1864	15 Mar. 1856	1 gun not on board. 6 6	7 6	Will probably be efficient, with moderate repairs, until 1870.

GUN BOATS IN COMMISSION—*continued.*

Guns.	Tons.	Horse Power.	Name.	Station.	Date when last Repaired.	Date of Launching.	Draught of Water		Condition.
							Forward.	Aft.	
2	235	60	Albacore -	North America and West Indies	Not repaired since first fitted, August 1864.	3 April 1856	<i>Ft. in.</i> 6 2	<i>Ft. in.</i> 7 2	Condition indifferent.
2	236	60	Spider -	South-east coast of America -	December 1861	23 Feb. 1856	7 4	7 2	Serviceable.
1	236	60	Forward -	Pacific - - - - -	July 1859 -	8 Dec. 1855	7 10	8 1	Has been frequently under repair; not in good condition.
2	233	60	Hardy -	China - - - - -	Not thoroughly repaired since first fitted, November 1859.	1 Mar. 1856	7 6	8 0	Condition indifferent.
2	233	60	Havock -	ditto - - - - -	August 1865, at Hong Kong.	20 Mar. 1856	6 8	8 0	Has been frequently under repair; not in good condition.
2	233	60	Grasshopper	ditto - - - - -	1867, at Hong Kong.	8 Dec. 1855	7 3	7 6	Has been frequently under repair; not in good condition.
2	235	60	Insolent -	ditto - - - - -	August 1865, at Shanghai.	26 Jan. 1856	7 1	7 6	Has had large repairs; fit for harbour duty only.
1	236	60	Cockchafer	ditto - - - - -	December 1861, at Hong Kong.	24 Nov. 1855	7 9	8 4	Condition indifferent.
1	235	60	Weazel -	ditto - - - - -	In 1866, at Shanghai.	19 Mar. 1855	7 4	8 2	Serviceable.
1	233	60	Haughty -	ditto - - - - -	December 1866, at Hong Kong.	9 Feb. 1856	7 6	8 1	Has been frequently under repair; not in good condition.
1	234	60	Bustard -	ditto - - - - -	December 1866, at Shanghai.	20 Oct. 1855	7 4	7 9	Indifferent.
1	237	60	Banterer -	ditto - - - - -	November 1866, at Hong Kong.	29 Sept. 1855	7 8 one gun not on board.	8 5	Has been frequently repaired; condition doubtful.
1	238	60	Firm -	ditto - - - - -	May 1866, at Hong Kong.	22 Mar. 1856	7 3	7 9	Has been frequently under repair.
2	234	60	Snap -	ditto - - - - -	April 1866, at Hong Kong.	3 Feb. 1855	7 6	8 0	Serviceable now, but condition not good.
1	233	60	Forester -	ditto - - - - -	May 1866, at Hong Kong.	23 Jan. 1856	6 9	6 11	Has been frequently under repair.
2	236	60	Bouncer -	ditto - - - - -	October 1866, at Hong Kong.	23 Feb. 1856	7 6	7 8	Serviceable.
2	236	60	Bullfrog -	Particular service (North Shields)	June 1865 -	6 Oct. 1855	6 8 per design.	6 8	Serviceable.
2	233	60	Fervent -	Particular service (Bristol) -	November 1862	23 Jan. 1856	6 4	6 10	Condition good.
2	217	60	Gleaner -	South-east coast of America -	April 1865 -	7 Oct. 1854	7 5	7 7	Serviceable.
1	238	40	Drake -	China - - - - -	May 1866, at Hong Kong.	8 Mar. 1856	5 4	6 0	Frequently under repair; condition indifferent.
1	238	40	Janus -	ditto - - - - -	December 1866, at Hong Kong.	8 Mar. 1856	5 9	6 0	Frequently under repair; condition indifferent.
2	212	20	Nettle -	North America and West Indies	Not thoroughly repaired since first fitted, April 1856.	9 Feb. 1856	5 0	5 3	Only fit for harbour service.

GUN VESSELS NOT IN COMMISSION.

4	702	200	Lily - -	In reserve at Sheerness - -	Not thoroughly repaired since first fitted, November 1862.	27 Feb. 1861	10 9	12 3	Rotten; not worth repair.
4	700	200	Eclipse -	- ditto - Sheerness - -	August 1866, at Sydney.	18 Sept. 1860	10 8	12 0	Very defective.
4	677	200	Coquette -	- ditto - Portsmouth - -	April 1862 -	25 Oct. 1855	10 8	11 6	Rotten; not worth repair.
3	693	160 Twin Screw.	Plover -	- ditto - Woolwich -	New ship, fitting out.	20 Feb. 1867	9 0 per design.	9 6	New.
5	431	80	Lee - -	- ditto - Sheerness - -	Now under repair.	25 Jan. 1860	10 11	11 10½	Repairs just completing.
5	427	80	Jaseur -	- ditto - Sheerness - -	Now under repair.	15 May 1862	10 6	12 0	Defective; under repair.
5	426	80	Pandora -	- ditto - Portsmouth -	Now under repair.	7 Feb. 1861	10 9	12 3	- ditto - ditto.
5	428	80	Speedwell -	- ditto - Woolwich -	Now under repair.	12 Feb. 1861	10 10	12 0	- ditto - ditto.
5	430	80	Sparrow -	- ditto - Devonport -	Not repaired since first fitted, April 1863.	7 July 1860	10 8	12 2	Rotten; not worth repair (breaking up).
3	360	80	Leven -	- ditto - Hong Kong -	August 1866, at Hong Kong.	7 Mar. 1857	8 2	8 8	Frequently under repair; condition indifferent.

GUN BOATS NOT IN COMMISSION.

Guns.	Tons.	Horse Power.	Name.	Station.	Date when last Repaired.	Date of Launching.	Draught of Water		Condition.		
							Forward.	Aft.			
2	268	60	Netley	In reserve at Portsmouth	Not repaired since first fitted out, May 1867.	2 July 1866	Ft. 7	in. 9½	Ft. 8	in. 2	Serviceable; condition good.
2	268	60	Orwell	- ditto - ditto -	New ship fitting out.	27 Dec. 1866	7	8	7	8	Serviceable.
2	234	60	Rose	In reserve at Queenstown	Not repaired since first fitted out, January 1862.	21 April 1856	6	8	6	8	Fit for harbour service only; in use for ditto.
2	234	60	Spanker	In reserve at Sheerness	February 1866, for 2nd Division of Reserve.	22 Mar. 1856	6	8	6	8	Fit for harbour service only; in use for ditto.
2	234	60	Thrasher	- ditto - ditto -	March 1866, for 2nd Division of Reserve.	22 Mar. 1856	6	8	6	8	Fit for harbour service only; in use for ditto.
2	235	60	Mayflower	- ditto - ditto -	July 1858	31 Jan. 1856	6	8	6	8	Unserviceable.
2	235	60	Leveret	In reserve at Portsmouth	September 1864	8 Mar. 1856	6	8	7	2	Not worth repair.
2	234	60	Foam	- ditto - ditto -	Not repaired since first fitted out, September 1864.	8 May 1856	6	8	7	3	Rotten.
2	233	60	Shamrock	- ditto - ditto -	May 1866	13 Mar. 1856	6	10	7	0	Rotten and unserviceable. (Broken up since 1st April 1867).
2	234	60	Brave	- ditto - ditto -	Never completed fitting out.	11 Feb. 1856	6	8	6	8	Not complete; frame to be taken down.
2	233	60	Cherokee	- ditto - ditto -	Never completed for sea.	30 April 1856	6	8	6	8	Not complete; frame to be taken down.
2	237	60	Peacock	- ditto - ditto -	Repairs suspended in March 1861.	12 April 1856	6	8	6	8	Not complete; frame to be taken down.
2	236	60	Swan	- ditto - ditto -	Never fitted for sea.	12 April 1856	6	8	6	8	Fit for harbour service only.
2	235	60	Wave	- ditto - ditto -	Never fitted for sea.	25 June 1856	6	8	6	8	Fit for harbour service only.
2	233	60	Jackdaw	In reserve at Devonport	Repairs suspended, April 1862.	18 May 1855	6	8	6	8	Unserviceable.
2	232	60	Skipjack	- ditto - ditto -	March 1866, for harbour service.	4 Aug. 1855	8	1	7	8	Fit for harbour service only.
2	235	60	Procris	- ditto - ditto -	April 1860	13 Mar. 1856	6	11	6	8	Unserviceable.
2	235	60	Nightingale	- ditto - ditto -	January 1862	22 Dec. 1855	6	6	7	2	- ditto.
1	234	60	Dove	In reserve at Hong Kong	1863, at Hong Kong.	24 Nov. 1855	8	9	8	0	Serviceable.
1	235	60	Opossum	- ditto - ditto -	October 1859, at Hong Kong.	28 Feb. 1856	7	4	7	8	Unserviceable.
1	236	60	Starling	Laid up at Shanghai	Under repair at Shanghai per A. O. 17 December 1866.	1 Feb. 1855	6	8	6	8	Serviceable.
1	237	60	Grappler	Laid up at Esquimalt	July 1859	29 Mar. 1856	8	1	8	2	Rotten and unserviceable.
2	217	60	Ruby	In reserve at Devonport	December 1864	7 Oct. 1854	7	2	7	10	Defective.
2	237	40	Hunter	In reserve at Portsmouth	Never commissioned.	7 June 1856	4	6	4	6	Condition good.
2	212	20	Angler	- ditto - ditto -	Not thoroughly repaired since first fitted, April 1856.	8 Mar. 1856	5	0	5	2	Defective and unserviceable.
2	212	20	Cheerful	- ditto - ditto -	Not thoroughly repaired since fitted, November 1855.	6 Oct. 1855	4	6	4	6	Defective and unserviceable.
2	213	20	Rambler	- ditto - ditto -	Not thoroughly repaired since fitted, April 1856.	21 Feb. 1856	4	9	5	4	Defective and unserviceable.
2	212	20	Ant	- ditto - ditto -	October 1858	22 Mar. 1856	4	9	5	2	Defective and unserviceable.
2	212	20	Decoy	- ditto - ditto -	September 1858	21 Feb. 1856	5	0	5	3	Defective and unserviceable.
2	216	20	Daisy	- ditto - ditto -	Not thoroughly repaired since fitted, April 1856.	20 Mar. 1856	4	6	4	6	Defective and unserviceable.
2	212	20	Chub	- ditto - ditto -	Not repaired since fitted, December 1855.	15 Oct. 1855	4	6	4	6	Defective and unserviceable.
2	212	20	Onyx	In reserve at Jamaica	September 1864, at Bermuda.	3 April 1856	4	6	4	6	Defective, and used for harbour service.

NAVY (GUN VESSELS, &c.)

RETURN of GUN VESSELS and GUN Boats under
1,000 Tons IN Commission and OUT of Com-
mission on 1st April 1867; stating in each case
how and where Disposed of and Employed; what
Condition they were in as to Repair on 1st April;
and at what Date last Repaired; also, their
Draught of Water, Tonnage, Horse-power, and
Date of Building.

(*Lord John Hay.*)

*Ordered, by The House of Commons, to be Printed,
5 June 1867.*

RETURN to an Order of the Honourable The House of Commons,
dated 18 June 1867;—for,

COPY “of REPORT of COMMITTEE ON METALS to the Lords Commissioners of
the Admiralty in 1845 on IRON.”

Admiralty, }
24 June 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

SECOND REPORT.

ON IRON AND ITS USES IN THE NAVAL SERVICE OF THIS COUNTRY.

To the Right Honourable the Lords Commissioners of the Admiralty.

WE, the undersigned, appointed by your Lordships to form a Committee for the purposes stated in the foregoing Commission, beg most respectfully to state that, in compliance with your Lordships' wishes, we have visited the several dockyards, and have inquired into the present mode adopted in each for the manufacture of the several articles for the Naval Service of the country, composed of iron, copper, and other metals; and we beg to submit, in the course of the following Report, several recommendations which, we are of opinion, will tend greatly to the improvement of this branch of the Naval Service.

We have the honour further to state that we have also visited several of the principal private establishments in Birmingham, Manchester, Yorkshire, Newcastle, &c., &c., in order to ascertain what practices adopted in them might be beneficially introduced into Her Majesty's Service.

It is our pleasing duty to state, that we have received from the under-mentioned firms much useful information on the various subjects to which your Lordships have been pleased to direct our attention, granted in a liberal spirit, and with much courtesy and kindness.

The Great Western Railway Company.
Messrs. Nasmyth, Gaskell, & Co., Patricroft, near Manchester.
Mr. Fairbairn, Manchester.
Messrs. Rushton & Co., Bolton.
Messrs. Hick & Co. - ditto.
Mr. Sharp, Manchester.
Mr. Rigby, Hawarden.
The Bowling Iron Works, Yorkshire.
The Lowmoor ditto - ditto.
Messrs. Hawks, Crawshay, & Co., Gateshead, near Newcastle.
Messrs. Abbot & Co. - - - ditto.
Mr. Smith, West Bromwich.
Messrs. Thornicroft, Wolverhampton.
Gospel Oak Works, Tipton.
Mr. Muntz, Smethwick, near Birmingham.
Messrs. Fox, Henderson, & Co. ditto.
Patent Tube Welding Company ditto.
Messrs. Sims & Co. - - ditto.
Mr. Thrupp, Coach Axle and Spring Maker, George-street, Oxford-street.
Mr. Penn, Greenwich.

Points to which the attention of the Committee has been directed.

Your Lordships have been pleased to direct our attention on the subject of iron, especially to the following points :—

1st. The quality of iron in general; average quantity in use; its peculiar properties; the best mode of securing it from deterioration; and the modes of manufacturing it.

2nd. How far the working of the iron in the several smitheries, cold hammering, the machines in use with respect to it, the quality of coals used with it, the degrees of heat required, &c., affect the iron injuriously; and whether any, and what, alterations in those respects should be adopted.

3rd. The quantity and use made of scrap and old iron.

4th. What alterations, if any, should take place in proving chain cables and anchors; and experiments to be instituted to ascertain the effect on the metal of the various modes of testing the said cables and anchors.

5th. To ascertain at Woolwich and Portsmouth the amount of strain which has caused the breakage of chain cables and anchors in the several cases in which they have broken in testing; and to investigate whether any variation in the mode of applying such strain may have tended to cause the breakage; in short, to examine into the whole of this subject so as to furnish satisfactory observations thereon.

6th. Can a link of a chain cable be formed by compression, instead of welding; and, if so, the probable result as to its strength.

7th. The best mode of preserving chain cables, whether by galvanizing or other process; and the probable cost of such process, as compared with the value of the iron.

SECTION 1.—The quality of the iron in general; average quantity in use; its peculiar properties; the best mode of securing it from deterioration; and the modes of manufacturing it.

Four kinds of iron used in the dock-yards.

The wrought iron used in the dockyards is of four kinds :

1. New iron manufactured from the ore and supplied by the contractors.

2. Scrap iron sent from the several dockyards to be remanufactured by Messrs. Johnson, Norton, & Co.

3. A small quantity of scrap iron manufactured at the metal mills at Portsmouth.

4. Scrap iron remanufactured in the several dockyards under the steam and tilt-hammers, and not afterwards rolled into flats, boltstaves, &c. &c.

Difference in the quality of the several kinds of iron.

Of these kinds, the best is that remanufactured at the metal mills; and the scrap iron remanufactured by Messrs. Johnson & Co. is generally preferable to the new wrought iron obtained from the ore, with the exception of some kinds obtained for particular purposes, at comparatively high prices.

To secure iron from deterioration.

With respect to the best mode of securing from deterioration the store of raw iron, we are of opinion, in common with most of the leading manufacturers, that it should be kept under cover, and exposed as little as possible to the effects of moisture.

Modes of manufacturing.

The modes of manufacturing iron do not greatly differ. The best iron is that which is most frequently worked, or which, in the manufacture, undergoes the greatest number of processes at a welding heat.

The best iron obtained from scrap and old iron.

But to obtain a very superior iron (with the exception of charcoal iron) this is produced from re-manufactured scrap and old iron. And, in order to insure the most perfect workmanship in this important article, it is submitted that means

means be afforded in the dockyards for re-manufacturing the whole of the suitable scrap and old iron which arises in the service. In some private establishments this is done with extraordinary care, and the result is a very superior article.

This has been done to a very limited extent at the Portsmouth Metal Mills, and all who have used the iron remanufactured there agree in saying that it is the best iron they have ever met with for ordinary purposes.

By the establishment of the metal mills at Chatham, and by the introduction, where practicable, of rolls in connexion with the steam hammers that are, or are about to be, introduced, it is submitted that a great improvement may be made in the quality and application of this most important article.

In cleaning the scrap iron previous to remanufacture, we recommend that it be done in the chain cable cleaning machine as far as is practicable. By this means not only will the scrap iron be perfectly cleaned, but the cleaning of the chain cable will be facilitated by the increased attrition thus produced.

Iron made at metal mills in Portsmouth Yard very good.

More good iron may be made when the mills at Chatham are complete.

To clean scrap iron in the machine for cleaning chain cables.

SECTION 2.—How far the working of the iron in the several smitheries, cold hammering, the machines in use with respect to it, the quality of coals used with it, the degrees of heat required, &c., affect the iron injuriously; and whether any, and what, alterations in those respects should be adopted.

Smitheries.

On the subject of working the iron in the several smitheries, we beg to submit the following observations on the means of producing sound smith's work.

The means of producing sound smith's work.

The most fertile sources of defects which from time to time have been experienced, may be classed under the following heads:

Sources of defects.

1. The original inferior quality of the iron.
2. Improper treatment in the forging.
3. Improper treatment of articles of smith's work in actual service.

1st. With respect to the quality of the iron, it may be remarked that such is the general good quality of the material employed in the dockyards that it would not be a likely means of improving the quality of the dockyard smith's work to search for the sources of defect in the original bad quality of the material. The iron employed is generally of good quality, and only requires due care in the treatment, to render the work produced from it equal to any legitimate duty required of it.

Dockyard iron of good quality generally.

2nd. With respect to the second causes of defects, namely, improper treatment in the forging; as this head refers to a very extensive class of defects, it may be proper to regard it—

Defects arising from bad forging.

First, with reference to the nature of the forging, and

Secondly, to the kind of coal used in the operation.

First, it may be remarked that as the process of welding is the chief means used to unite together such pieces of wrought iron as may be required to form the article desired to be produced, it is most important that every condition necessary for this process be in the highest state of perfection.

Conditions for proper welding.

This requires that the iron should be at the right welding heat, rather above it than under; so that if any slight delay or impediment arise in bringing the parts together, there may be, as it were, a surplus of heat to work upon; and, next in importance to this is, that as little scoria or oxide, or other foreign material as possible, should cling to it, or interpose between the surfaces about to be welded.

Ditto.

As the welding heat of iron is accompanied by its combustion and by the production of an oxide in a melting state, we must altogether get quit of this interposing material, as ere the two pieces are laid together, it has a tendency to form as rapidly as it is swept or wiped off.

Conditions requisite for proper welding.

But very fortunately, in almost every case, if due attention be paid to the form and manner in which the surfaces are presented together, the instant the

Form of welding surfaces.

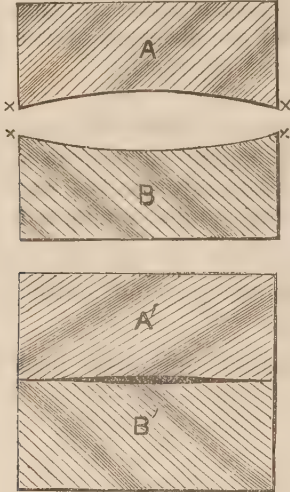
blows are given to the parts in question, the interposing scoria is forced out, and the then perfectly pure surfaces of the welding hot iron are so brought into intimate contact as to unite together, and form one mass.

Defective welding arising from *shut up* scoria.

There is no department of the art of forging more important than this; inasmuch as in the majority of cases of defective welding, it is observed that the defect in question has arisen, either from the scoria being *shut up*, by means of improper forms of the surfaces, or that it has been insufficiently expressed from between the surfaces, for want of due energy in the blows of the hammer.

Defective welding from *shut up* scoria.

In order to explain this more clearly, let us suppose that two slightly concave surfaces of welding hot iron are brought together and sought to be welded perfectly by hammering.



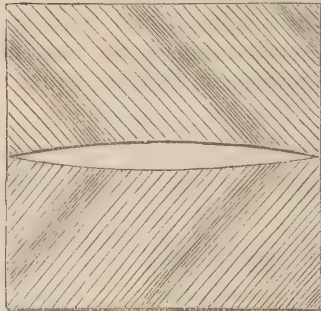
Let A, B, represent such parts before being welded, and A', B', the same parts after being welded.

On such parts A, B, being brought into contact and beat together, the parts of these surfaces which first come together, are in the edges x, x, x, x; these become first welded, and the result is that the scoria, clinging to the remaining part of the surfaces, is *shut up* without means of escape, and consequently remains interposed between the two; and the result is a defective weld, with, with the additional disadvantage that such a piece of work would present all the external appearance of being soundly welded.

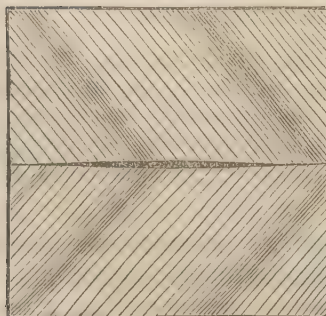
Illustrations of sound and unsound welding.

The subjoined figures include the true principles of sound welding.

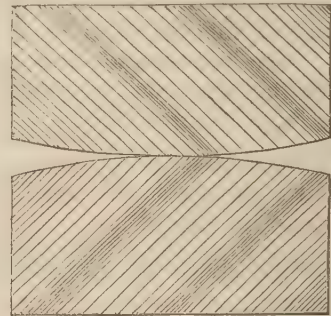
Bad primary arrangement of the surfaces.



Result; defective weld, scoria shut up.



Good primary arrangement of the surfaces.



Result; perfect weld, scoria completely expressed.

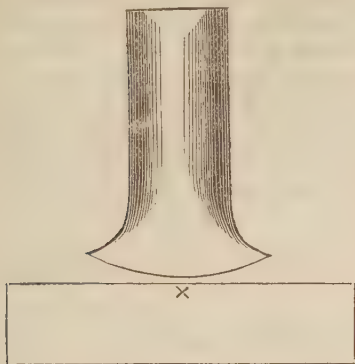


The smiths should be well instructed on this point.

In order to remove all chance of this frequent class of defects, it is only necessary to see that the smiths are duly instructed on the subject of the evils arising from *inclosed scoria*, and on the simple means of preventing it, by properly shaping the surfaces prior to welding.

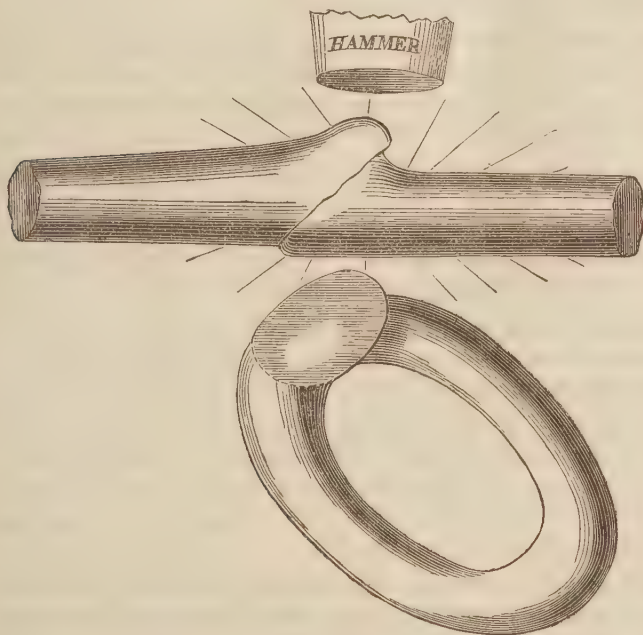
This

This is the more important and requisite, inasmuch as in a great many cases the system of "dab on" welding is unavoidable in the production of certain pieces of work; and as such "dab on" parts are generally subject to great and unfavourable strain, it is more than usually requisite to adopt the proper precautions so as to secure the expression of the scoria by such a system of forming the surface as shown in the figure, so that the first part to come in contact is at $\times$, and as the union takes place by the hammering that the scoria shall to the last have free egress and be thoroughly expressed.



In the most frequent cases of welding, namely, such as uniting two rods or bars together, as

Welding of rods or bars.



in the case of welding a ring or link of a chain, the forms of the surfaces usually given (*see figure*) tend to preclude the risk of scoria being left in between them. But even in such case, due attention should be paid to the system of convexity of surface.

The above system of scaph welding is as excellent as it is common. The parts are so applied to each other that the effect of the blow is to cause them to slide or scrape one upon the other, and thus produce a good weld.

Generally rightly done.

Secondly. On the subject of forging, it may be proper to refer to the kind of coal used in that operation.

Coals.

Much evil arises in this process from the risk of viscid and sulphurous scoria clinging to the surfaces of the iron, owing to the use of raw or impure coal as the material for smith's fires.

Raw coal bad for forging.

If the coal were of a pure quality, namely, such as contain nothing but carbon and its ordinary bituminous accompaniments, the evil alluded to would be less felt; but as all coal contains, besides earthy matter, more or less sulphur, a class of evils arise which are of a very serious nature.

Ditto.

When we attempt to weld together two pieces of iron which have been heated in a fire formed of very sulphurous coal, not only is the quality of the iron damaged by being rendered brittle, but also its surface becomes covered with a certain substance which, in a very remarkable degree, destroys that sticking, adhesive, quality which accompanies iron when at a welding heat. When this evil exists to excess, the parts will not unite, however much they may be hammered. But, although such an extreme case as this is not frequent, yet it is a question of degree, and not of existence, so long as raw coal is used*.

Effect of a sulphurous coal in preventing welding.

It

* One of the many advantages arising from the use of air furnaces in lieu of ordinary smith's fires consists in the almost total removal of any risk of the impure or earthy matters in the coal coming in contact with the iron while being heated previous to welding. In the ordinary smith's fires any earthy matter, such as clay and lime, &c., contained in the coal, is naturally brought in contact with the iron, and such is the viscid nature of such fluxed material that it is scarcely possible to remove it, so toughly does it cling to the surface of the welding hot iron; whereas in the case of

The coals should be slightly carbonized.

It is, therefore, highly proper, for those fires which admit of it, slightly to carbonize the coal in a separate oven previous to use, so that, when supplied to the smiths, it is in a great degree deprived of its more volatile parts in the driving off of which a considerable portion of sulphur goes off also. This is the practice in most private establishments where the quality of the smith's work is a prime object. Besides which it may be proper to state that the use of charred coal in a very great degree removes the evil of the smoke which so peculiarly distinguishes the atmosphere of the dockyard smitheries, arising from the use of raw coal, and enormous banked up fires, when a much smaller quantity of coal would do the required work.

Particulars to be attended to in the dockyard smitheries.

The working of iron in the several dockyard smitheries will doubtless be improved by attending to the following particulars:—

Welding.

1. By always adopting the process of welding already explained.

Bad practice to be discontinued.

It is the practice of some smiths even to make notches in the scarphs of two pieces of iron they are about to weld together, thus affording a lodgment for scoria, &c. This practice should be discontinued.

Another.

Another extremely bad practice should also be discontinued, namely, that of throwing in a few fresh coals into a hollow fire on the hot iron, just before the heat is coming out; this practice is very common, and it is as bad as it is common. The use of air furnaces will prevent it.

Coals to be slightly coked.

2. By adopting the practice already alluded to (which is very general in the large private establishments) of slightly coking the coals before using them in the fires.

It is not practicable to introduce this coked coal into large hollow fires; but in the smaller fires it may be always successfully applied.

Coking furnaces will be required.

This would render necessary the introduction in every dockyard, of furnaces for coking the coals, the expense of which, however, would be inconsiderable. A drawing of a suitable coking furnace is added to this Report (Fig. 1).

Air furnaces to take the place of some hollow fires.

By substituting, where practicable, air furnaces in lieu of hollow fires: by this means a much larger body would at once be brought to a welding heat, which, by means of the steam hammers, may be forged in as short a time as a smaller body, by the existing methods. See also note A (page 5.) A drawing of an air furnace is attached to this Report (Fig. 2.)

Store of rough forgings to be kept.

4. That a store of rough forgings, obtained from scrap-iron under the steam-hammer, of the sizes most generally useful, be kept at all the smitheries, and used under the direction of the masters and foremen, so as to prevent the necessity of piling the iron in the smiths' fires. This practice is found to be attended with the best results in many large private establishments.

Cold hammering to be abolished.

5. By abolishing cold hammering, unless the article is to be afterwards annealed.

Annealing furnaces will be required.

6. By introducing annealing furnaces capable of receiving the largest articles.

Effects of annealing.

On the subject of annealing, it may be stated to be a process which appears to have the property of restoring to iron that quality of toughness which it may have lost in the act of being worked, by cold hammering, &c.

Fracture of large articles of iron work.

In addition to the numberless instances of the fracture of large articles of iron work, one has lately occurred in Portsmouth harbour, in the fracture of one of the paddle-box boats' davits of H. M. S. V. "Retribution." It broke in the solid iron ($4\frac{1}{2}$ inches by $3\frac{1}{4}$ inches), while getting the boat out. The fracture was short, and the iron had the appearance of being brittle. This accident, which might have been attended with very serious consequences, probably would not have happened if the davit had been annealed.

It may be found necessary to have a small annealing furnace always in operation, and to use a large one occasionally.

Every

the employment of the air furnace, the fuel never comes in contact with the work, as the fire is quite separate, and only the resulting heat made to act upon the iron. This observation includes, at once, the theory and practical superiority of air furnaces over large fires. It is heat alone we desire to bring in contact with the iron; not coal: coal is only a means for producing heat, and should never touch the iron.

Every article of iron work should be marked after being annealed, to show that this process has taken place. Annealed articles to be marked.

A drawing of an annealing furnace accompanies this Report. (Fig. 3.)

7. By supplying every smith with such proper and useful tools, as may be necessary, and by also having in each shop a store of such other useful tools as may be only occasionally required. Smiths to be supplied with proper tools.

Lists of such tools are given in the Appendix, p. 35 to 43.

The attention of the master smiths should be most particularly directed to this point, a great want of attention to it having been found in some of the smitheries. Master smiths to pay attention to this.

The tools to be constantly kept in good order, and properly rodded. While waiting for a heat, a smith ought frequently to occupy himself in repairing his tools, and in arranging those belonging to his fire in neat order in their proper places. Tools to be kept well arranged and in good order.

There is much apparent want of attention to such orderly habits in the dockyard smitheries. Tools, templates, moulds, bits of half-finished work, and spare materials lying about in great confusion, to the great sacrifice of space and time. Want of attention to it is observable in the smitheries of the dockyards.

In many private establishments we have particularly noticed the good order and arrangement of the tools. In the store, especially containing tools common to the whole shop, they are found to be in excellent repair, well arranged, and constantly fit for use. The contrary noticed in many private establishments.

8. By adopting a mode in the construction of the smaller fires, shown in the sketches of smiths' fires which accompany this Report, and which have been found to answer extremely well in private establishments. (Figs. 4 and 5). Plans for constructing the smaller forges.

The whole system of large fires will probably be greatly modified by the general introduction of the steam hammers, and may therefore remain unaltered for the present; notwithstanding in most of the dockyards, these large fires, and their chimneys, are in want of considerable alteration. Large fires not to be altered for the present.

9. By taking care that the smitheries be sufficiently lighted.

Smitheries to be well lighted.

To this end means should be adopted for getting rid of the smoke of which the dockyard smitheries are generally full. The walls should be whitewashed periodically, and the windows kept clean. Smoke to be got rid of.

The nuisance of the smoke would, in many cases, be diminished by attending to the size and nature of the flues to the chimneys. At the large fires the flues are frequently found to be much too small to admit of a free and rapid passage for the smoke, and thus the shops are filled with it. The smoke nuisance owing to small flues.

10. By taking care that the face of the Hercules, and of all other large hammers be sufficiently rounded at the edge to prevent the injury which might otherwise be done to the iron by indenting the face, and thus fracturing, as it were, the fibre. Face of Hercules to be sufficiently rounded.

We also beg to submit the following observations in connection with the subject of the dockyard smitheries:— Additional observations on the subject of the smitheries.

It is of importance that the master smith should inform himself, from time to time, of the several articles of iron work in store, or which may be demanded from the contractors, in order that he may not unnecessarily employ his people in making articles which may be obtained elsewhere. Not to make articles that are in store, or that can be procured from the contractor.

In many private establishments, as also in the factory at Woolwich, men, who are not brought up as smiths, are employed, at a lower rate of pay than the smiths; as hammermen. In our dockyard smitheries the men who are only employed as hammermen, are paid as much as, and sometimes even more than, the smith who has charge of the fire, and who, alone, is responsible for the work. A class of hammermen to be introduced.

We recommend that men at a lower rate of pay be gradually introduced as hammermen into the dockyards.

All articles to be marked with the initials of the smith who made them.

In order the more effectually to insure good workmanship, we submit that all the articles in future made in the smitheries be marked by the initials of the fireman, and of the dockyard where made, and also the last two figures of the year. Something of this kind has been imperfectly done in some of the yards; but advantage would doubtless arise by insisting upon its adoption everywhere.

Mode of examining new iron.

In examining the new iron previous to receipt, it is the practice in one or two of the dockyards to try it *hot* as well as cold, so as to ascertain that it is neither red-short nor cold-short. We recommend that this practice be adopted in all the dockyards.

Mode of examining other articles.

The various articles of black ironmongery, and the tools for the several trades, cost annually large sums of money. We recommend that uniformity of practice be adopted in the several dockyards in the examination of all such articles prior to receipt. Instructions on the mode of examining the several articles should be prepared. The several dockyards might be called on to state their present practices in the examination of the several articles alluded to.

Better scales required.

In some of the dockyard smitheries, the scales used do not weigh with sufficient accuracy for the smaller articles, by which means there is a probability of introducing error into the accounts. We recommend, therefore, that all the smitheries be furnished with scales proper for the purpose.

Care of short pieces of iron.

We recommend that a man be employed in each smithery to collect, arrange, and take care of the numberless pieces of bar and other iron, which are too good for the scrap heap, and which arise in the progress of the works. If these were arranged on suitable shelves as to size and length, it is believed that expense would be saved by the men being enabled in many instances to get just the piece they want. Such a man should also take care of the templates, gauges, moulds, &c. &c., which are now sometimes found lying about in the shops.

Uniformity in the threads of screws.

In Mr. Murray's Report (Appendix, p. 63) on the dockyard smitheries, dated 26th June 1843, addressed to Commodore Superintendent Sir F. A. Collier, are the following observations on the subject of uniformity in screws, which we beg to press upon the attention of your Lordships:—

He says, "As a general improvement connected with the whole of the smitheries, I would recommend that all the screwing apparatus should be made uniform, so that all the bolts and nuts of the same size should have the same screws. This appears to me to be a matter of great importance, and not attended with great expense; and as the sacrifice of hand stocks, with their taps and dies, is now in the course of being made, by the substitution of screwing machines, I think a better time could not be chosen for the change.

"A uniformity of taps and dies throughout the whole country has already engaged the attention of engineers generally, a proposal for it having originated with the late Mr. Maudsley, and has been since, at various times, canvassed with very general approval."

The patterns at Woolwich to be conformed to.

We agree in opinion with Mr. Murray, and beg to recommend that all taps and dies for screws which may in future be required be made conformable to the patterns in the Steam Department at Woolwich Yard, which are those of Mr. Whitworth's. We do not intend this to apply to the screws of the fire engines throughout the yards, which are already of a uniform pattern, although not that of Mr. Whitworth.

ACCOUNTS OF SMITHS' WORK.

Smiths' accounts.

Our attention has been directed to the subject of the accounts kept at the smitheries. It has been strongly recommended by some, that these accounts should be so formed as to show,—

1. Whether due exertion has been used by the workmen.
2. Whether due economy has been observed in the use of materials.

Some accounts useful to deter-

1. With respect to the first: if an account were kept, showing the weight of the article made, and the time employed in the making it, a satisfactory judgment

ment might be formed as to the value of the workmanship. Such information would be valuable, as leading to the establishment of a fair list of prices when men are employed on task-work. mine value of workmanship.

But with respect to the industry used by the smith in the performance of his work, we are of opinion (in common with all the leading manufacturers whom we have consulted on the subject) that no such account can generally be made to show whether due exertion has been used ; this must be left to the supervision of proper masters and foremen. Accounts fail to show whether industry has been used.

For example, two pieces of iron work may be of the same weight and bear the same name, but the labour necessary for the one may be far greater than for the other ; and thus an account showing only the weight of the article and the time employed, would not always lead to a correct judgment as to the industry used. Ex Gr.

Many attempts at keeping such accounts have been made in large private establishments, but they have always been abandoned in favour of efficient supervision. Such accounts abandoned by private individuals.

2nd. With respect to accounts showing whether due economy has been observed in the use of materials, we beg to state, that accounts of this kind, showing the loss in manufacture of the raw material have sometimes been kept by private individuals, but have afterwards been abandoned as not tending to any useful result. The whole advantage proposed by such a form may be obtained by proper supervision. Accounts to check waste of materials.

It is the duty of the master and foremen of smiths, to see that the raw material is not improperly expended, and this duty, if rightly performed, will be found fully adequate to every purpose of economy in the use of materials. Better done by the supervision of the officers.

Such an account would be necessarily cumbrous and could not be kept without some expense ; which expense might be saved, and every proper object attained, by adequate supervision on the part of the masters and foremen. Ditto.

Nevertheless, in certain cases of very heavy articles of iron work, such as anchors, &c., it may be sometimes necessary to know the loss of iron in the manufacture, in order to ascertain the total cost of the article. Such cases as these are out of the ordinary rule, and should be provided for separately. In the generality of articles, if due economy be used, the weight of the finished article will be a sufficient guide as to the quantity of material expended ; but not so in the large articles above alluded to, in which the necessary loss of raw material in manufacturing, is far greater in proportion than the ordinary loss in small articles. When, as in these large articles, the iron has to be piled or faggotted together, the loss is relatively much greater than in those smaller articles where such process of piling is not necessary. Some accounts may, however, be useful in some cases.

But inasmuch as many persons on whose judgment we rely, are of opinion that proper accounts kept at the smitheries would be of considerable use, we submit that they be tried for twelve months at the dockyards of Woolwich and Portsmouth, and that the forms be adopted which have been proposed by Mr. Murray, of Woolwich Yard (Appendix, pp. 92 and 93). Certain accounts proposed to be tried for twelve months.

SECTION 3.—The Quantity and use made of Scrap and Old Iron.

We have obtained from the dockyards accounts of the quantities of scrap and old iron which have been issued for remanufacture during the five years ending 31st December last, and find the total quantity amount to upwards of 8,000 tons.

It is proposed that when the steam hammers in the several dockyards are in operation, together with sets of rolls, where necessary, that all the scrap iron which arises in the service shall be remanufactured by ourselves into billets, block uses, bars, flats, &c.

In the execution of smith's work, great facilities may be afforded by the due employment of the powers of the steam hammers in forming wrought iron articles in moulds. By the power of this machine, masses of wrought iron, at a welding heat, can be driven into moulds of any given form, by which not only may the

most absolute identity of form be insured, and the integrity of the fibre maintained, but much labour may also be saved, and the evils attendant upon the ordinary processes of forging be avoided.

SECTION 4.—What alterations, if any, should take place in proving chain cables and anchors; and experiments to be instituted to ascertain the effects on the metal, of the various modes of testing the said cables and anchors.

SECTION 5.—To ascertain at Woolwich and Portsmouth the amount of strain which has caused the breakage of chain cables and anchors in the several cases in which they have been broken in testing; and to investigate whether any variation in the mode of applying such strain may have tended to cause the breakage; in short, to examine into the whole of this subject, so as to furnish satisfactory observations thereon.

Breakage of anchors, &c., in testing, not caused by variation in the mode of applying the proof strains.

For the amount of strain which has caused the breakage of chain cables and anchors in the several cases in which they have been broken in testing (*vide* Appendix, page 63). In investigating this part of the subject, we have not found that the breakages have been caused by any variation in the mode of applying the proof strains.

Proof strain should be sufficient to detect defects, but not so great as to weaken the chain.

That it is of the utmost importance to ascertain the existence of defects in the materials and workmanship of chain cables and anchors, cannot admit of a doubt, and as it is evident that unless the strain which is brought upon them, when proved, be considerable, as compared with their strength, this mode of proof would generally fail in its object; on the other hand, if the strain be such as materially to weaken them, it would be proper to reduce it. As we know no other kind of test which could be safely substituted for that now in use, we think the question to be considered is, simply, whether or not, the present amount of strain should be altered.

Not advisable to increase it.

We do not think that it would be advisable to increase the proof strain on either anchors or cables, believing it to be sufficiently severe. As regards anchors, we find that the proof strain which is brought upon them seldom permanently alters their form, except to a very small extent; we therefore consider that the injury, if any done to them, is altogether inconsiderable, and that it is not expedient to make any reduction in the strains to which they are subject.

Not expedient to reduce the proof strain on anchors.

Experiments to ascertain the effect of breaking strains upon chain cables.

In order to ascertain the effect which even breaking strains are calculated to produce upon the strength of chain cables, we have taken pieces of cables and have broken them severally into two parts. We have then broken these parts, and have repeated several times the same experiments upon the pieces thus broken off. As a general rule we found that the breaking strain continued to increase, rather than diminish; thus seeming to show that the preceding strains, which were far above the proof strain, could not greatly have diminished the strength of the iron (Appendix, page 87).

Other experiments more conclusive.

These experiments, we admit, do not conclusively prove the extent of injury done by the preceding strains, because the links are not of uniform strength, and the weakest link is, of course, the first to break. We, therefore, thought it desirable to make experiments more conclusive as to the general principle, though perhaps not so applicable to the question under consideration.

Description of the experiments.

With this object we took 20 long bars of iron of the same quality, and from the middle of each bar was cut a length of 10 feet, every part of which may be supposed to be equally good. Each of these 10 feet bars was then cut into two equal parts and marked with the same letter. One set was then broken, and each bar of the corresponding set subjected for five minutes to three-fourths of the strain which had been found to break the others; a severer trial than that put upon chain cables. The strain was then taken off, and the bars were afterwards broken. It required the same strain (or within the smallest fraction of it) to break these bars as it did to break the first set, which had not, previously to their being broken, been subject to any strain at all.

The proof strain upon chain cables does not diminish their strength.

We think that the results of the experiments upon these bars, and upon the cables, show that the proof strain upon cables does not materially diminish their strength; at all events not to that degree as to render it expedient to reduce the severity of the test.

On the Quality of Chain Cables, &c.

To this important subject your Committee have given their best attention, and they confidently expect that their recommendations, if approved by your Lordships, will lead to a great improvement in the manufacture of chain cables, as well as to a reduction of the number of breakages of the cables and anchors already made.

By the conditions of the existing contracts for the supply of chain cables, the manufacturers are bound to use iron made in the manner therein specified; but we have no reason to believe that these conditions are always complied with. No persons have ever been appointed to superintend, on the part of the Government, the several processes by which the iron is manufactured from the ore, and the manufacturers and their principal foremen, are consequently without any check but their own sense of what is right.

The conditions of the contracts for chain cables not complied with.

We are not prepared to recommend the appointment of such inspectors, being convinced that the only means of obtaining cables of the best iron, and the best workmanship, is to make it more to the *interest* of the manufacturers to supply such cables, than cables of an inferior quality.

Contracts should be so formed as to make it to the *interest* of the contractor to supply the best article.

At present a manufacturer has no inducement to make a cable of greater strength than is necessary for bearing, with small risk of breakage, the proof strain. If it breaks he repairs it; it is again submitted to the same strain, and received; the only loss to him being the trifling expense of repair.

No inducement at present to supply a cable beyond a certain strength.

That the cables supplied to the navy are not so strong as they might be made, we have proved by comparing their strength with that of some links made in Woolwich Yard, even by smiths not accustomed to such work (Appendix, p. 85.)

Chain cables supplied to the navy are not so strong as they might be made.

And the conclusion to which we have thus arrived is admitted to be correct by the manufacturers themselves, who say they would supply better cables for a higher price.

Better cables could be obtained for better prices.

(*Note.*—The Trinity Board pay a much higher price than the Board of Admiralty. Appendix, p. 82.)

Even if there were no objection to cables being submitted to greater proof strain than they now are, we think that such an alteration would not completely answer the desired end, namely, the obtaining of the best cables that can be made, because the contractors would still have no inducement to make them stronger than such a strain rendered absolutely necessary. We are of opinion, however, that this important object might be obtained if the price of every cable were made dependent upon its absolute strength (ascertained by breaking a few of its links), and the scale of prices so graduated that the contractor's profit should be little or nothing upon cables such as are now supplied, but very liberal upon cables of the highest quality.

Of little use to increase the proof strain.

The price of the cable should depend upon its absolute strength.

Without troubling your Lordships with unnecessary details, it may be proper to remark that if the above suggestion should meet with your Lordships' approval, we think the most advisable way of carrying it out would be by preparing a graduated list of prices for all sizes and strengths, and calling upon cable makers of reputation to make their tenders at a per centage above or below these prices, thus leaving the supplying of cables, as at present, open to public competition.

Graduated scale of prices for all sizes and strengths.

The broken links should be replaced by others made of iron of the highest quality, and of a diameter somewhat greater than that of the broken links, and a skilful and careful chain-cable smith should be employed to do the work. They should then be tested as they now are, with the view of discovering, if possible, defects of workmanship or of material not externally visible.

How to replace the links which had broken for testing.

We are fully aware of the extra labour and expense attendant upon this mode of proceeding as compared with the present, but if it led, as we confidently think it would lead, to the introduction of cables of a very superior quality, we think that the advantage to the service would outweigh the labour and expense.

This plan would involve extra labour and expense, but the advantage to the Service would more than counter-balance them.

Proposition to anneal all anchors and cables.

It will be seen by reference to the Appendix, page 46, that many instances have occurred in which anchors have been so brittle as to break off perfectly short. Cables also are more subject to be broken by a transverse than by a direct strain being brought upon a link, as for instance, when it rests upon the edge of a hawsepipe, or upon linings to bitts not properly rounded. The remedy (independent of careful and judicious usage of these articles) best calculated in our opinion to obviate these evils, is to anneal all anchors and cables. We beg strongly to recommend that this process be adopted as soon as the necessary furnaces and other means to which we have referred in a former part of our Report be provided.

The improvement of chain cables, &c. may lead to a reduction of their weight.

The advantage of thus improving chain cables and anchors may possibly lead hereafter to a reduction in weight, a matter of no inconsiderable importance.

Testing Houses.

Arrangements for testing houses.

The testing of anchors, chain cables, chain rigging, and other articles, requires considerable care and attention. We recommend that the testing of these several articles be registered according to the forms given in the Appendix (page 84); that two intelligent smiths be appointed in the several testing houses (where they are not already appointed) to perform the undermentioned duties; that they be established as single station men, and paid at the rate of 5 s. per diem.

1st. A smith to have the general charge of the testing house, and to be responsible for the application of the required strain in each case.

2nd. Another to minutely examine the several chain cables, link by link, after testing; and generally to examine the workmanship of the several articles.

To ascertain frequently that the testing machines are correct.

It is desirable that the testing machines be themselves tested, from time to time, to ascertain that they correctly register the strain brought upon them; or, in other words, that the accuracy of the machine be frequently examined.

Accidents to Anchors, Chain Cables, &c., in actual Service.

We have collected evidence on the accidents which have happened in actual service, to anchors, chain cables, and other articles of iron work.

Information from the dockyards.

In doing so, we have, in the first instance, requested the superintendents of the several dockyards to be pleased to call upon the officers for replies to the following queries :—

1st. "What are the circumstances under which chain cables or anchors have been found to break in actual service."

2nd. "What kind of articles of iron work have been found to break in actual service on board ship."

"The opinion of the master smith is requested, as to what he may consider a proper remedy for the latter class of accidents."

The replies to the foregoing queries will be found in the Appendix (page 48.)

Information also from private individuals.

We have also to thank the undermentioned gentlemen for information on this subject. Their letters will also be found in the Appendix (page 44 *et seq.*) Mr. Town, Royal Clarence Yard; Mr. Walker, Queen's Harbour Master, Plymouth Sound; Mr. Easto, Sheerness Dockyard; Admiral Sir David Milne, in a letter addressed to the Right Honourable Sir George Cockburn, dated 12th February 1844.

No accounts are kept of the reasons for condemning anchors.

We have also endeavoured to ascertain from the dockyards the reasons for the condemnation of anchors. Showing the nature, place, and cause of defect. We hoped, by such a return, to be informed upon the kind of accidents which had really happened to anchors, but we find that no such accounts are kept.

Condemned anchors are placed on the storekeeper's charge as old iron, but no record is kept of the reasons for their condemnation.

We

We submit that instructions be issued for keeping such accounts in future. Information of this kind should be furnished as much in detail as possible, and whenever naval officers return to the dockyards anchors which are broken, or otherwise injured, they should be required to state, very minutely, the cause of such fracture or defects.

Such accounts should be kept in future.

The information we have received on accidents to anchors, chain cables, &c., has caused our most serious attention to be directed to the mode of manufacturing these and other large articles of ironwork, so as to ensure the best workmanship, and to provide against the dangerous casualties arising from their fracture.

The attention of the Committee has been directed to the means of preventing accidents to anchors, chain cables, &c.

There is reason to believe that many of the accidents that have arisen from the fracture of such articles, might have been prevented if due care had been used in their manufacture. But this requires considerable skill, the highest exercise of which can only be arrived at by great practice and good teaching; and it can hardly be expected that such skill can be acquired, except by those workmen who are almost exclusively employed in the manufacture of this class of articles.

Such accidents have often arisen from bad workmanship.

The piling of the iron and all the other subordinate processes, preparatory to the welding, together with the welding itself, of large masses of iron, can only be rightly performed by men who possess not only the requisite knowledge and experience, but who also are provided with the proper tools and machinery for dealing with large articles of this kind.

Such articles can only be properly made by men of skill, having proper tools, &c.

It is obvious that to provide such tools and machinery for the several dockyards, where they would only be occasionally used, would lead to great unnecessary expense.

Great expense to provide such proper tools for all the yards.

It is therefore proposed that one complete and well-furnished establishment be prepared for the manufacture of these large and important articles; by which, not only would considerable expense of machinery be saved, but it may be fully expected that the several articles would be made as well as they could be made, the men being thus employed, almost exclusively, in the manufacture of them.

All these large articles proposed to be made at one well-provided establishment.

In such an establishment not only might anchors of all sizes be made for the service of the navy, but also many other large articles of ironwork, such as the large wrought iron parts of steam engines, technically called "uses;" also billets, blocks for uses, spindles for capstans, iron tillars, mooring chains, &c., &c.; and perhaps, eventually, it might be beneficially extended to the manufacture of chain cables.

Description of articles to be made there.

In an establishment of the kind now proposed, the very best workmanship might be relied on, because, not only would the best workmen be employed, and, under proper management, would the best processes be adopted; but also, being a Government establishment, there would be no motive, founded on private interest, to slight the work.

No inducement to bad workmanship in such an establishment.

The highest skill of the smith is involved in the manufacture of the largest articles of iron work, and it is therefore submitted that such an establishment might be made an excellent normal school for the training of men to become masters and foremen of smiths in the several dockyards. We should thus be enabled to ensure the greatest amount of intelligence in these officers, and also to introduce uniformity of practice in smith's work, the increasing importance of which is becoming daily more and more felt.

It would form a normal school for training officers for the smitheries of the several yards.

Without some such system, it is almost in vain to expect to be able to introduce the best practices in the several dockyards. It is difficult to effect a change in existing systems, and to ensure similarity of practice everywhere. But inasmuch as in the working of iron, all practices are not equally good, and as the greater number of workmen as well as of masters and foremen, have not had the means of acquiring a knowledge of the best processes; and as the practices adopted in the smitheries of the dockyards are not always such as are in existence in the best large private establishments, we submit that unless some such means as are now recommended be adopted, it will be impossible that the most approved practices can be uniformly established everywhere.

In vain to expect to see the best practices introduced everywhere without some such system.

Such an establishment very beneficial in the event of war.

The normal smithery proposed to be at Deptford.

We submit that in time of war, when a great increase of large iron work may be required, such an establishment would be found extremely beneficial.

The present smithery at Deptford Dockyard being larger than is required for the purposes of that yard, and there being immediately contiguous to it, some buildings which are not appropriated to any very important uses, we submit that it would be well adapted for the normal smithery; we have therefore prepared, and beg herewith to submit, for the approval of your Lordships, plans for fitting it up accordingly. (Fig. 7.)

Other Causes of Accidents to Anchors, Chain-cables, &c.

Accidents to chain cables, &c., from the manner in which they are used.

On the subject of accidents which have happened to anchors, chain-cables, and other large articles of iron work in actual service, we beg to remark, in addition to what has been said on the mode of manufacturing, that such accidents are sometimes occasioned by the manner in which they are used.

Too sudden nip of the cables.

With respect to chain cables it may be stated, that one cause of their fracture has arisen from the too sudden nip of the chain over the places they have had to pass: for example, the iron facings to cross pieces to bitts, the outer and lower angle of the hawse pipes, &c., for want of being properly rounded, have caused accidents.

The charge of making patterns for chain-cable fittings, &c., to be in the hands of one individual.

In Portsmouth Dockyard a practice has existed for many years past, of giving to one man, an intelligent shipwright (assisted, when necessary, by others), the charge of making patterns for all castings required in the fitting of ships. We refer to castings for hawse pipes, bitt heads, cross pieces to bitts, messenger rollers, facings to bitts, and all the other various articles in iron and metal.

By which means the best forms may always be expected.

A uniform adherence to the best forms of these several articles is of essential importance. Many instances have been reported to us of accidents to chain cables, that have arisen from the want of proper form in such articles.

An intelligent shipwright to be appointed to these duties.

We submit, that considerable benefit would arise to the service, if an intelligent shipwright were appointed in each dockyard as a single station man, at 6 s. per diem, to have the whole charge of these important duties; and in this opinion we are enabled to state, that the master shipwrights of the several dockyards whom we have consulted on the subject most fully concur.

Too short a scope prejudicial to chain cables.

Again, with reference to the breakage of chain cables, we have to state that our attention has been called to the fact of some having parted on account of riding with too short a scope; and others by ships being brought up too suddenly with an insufficient length of cable. These points cannot be pressed too strongly upon the attention of naval officers.

Occasionally to veer out a short length when riding heavily.

When riding heavily at anchor, it is desirable that a short length of cable be veered out occasionally, in order to prevent the otherwise prolonged action upon the same links at the hawse-hole, &c.

Imperatively necessary to periodically examine chain cables on board ship.

Chain cables have also been injured for want of that requisite periodical examination of their whole length, which is so imperatively necessary; for want of this, the swivels and shackle bolts have sometimes been found completely set fast; many cables have been returned to the dockyards after sea-service, with the swivels and shackle bolts in this condition. It would be proper occasionally to introduce tallow into the swivels and shackle bolts, in order to prevent their being thus rendered useless.

Examination to take place every three months, and to be entered in the ship's log.

Some officers on whose judgment and experience we rely, have recommended that the chain cables should be examined every three months; that an entry of such examination be made in the ship's log; and that the logs of some ships be examined from time to time by a proper officer on shore, who shall certify to your Lordships as to the performance of this duty.

Formation of a link by compression.

SECTION 6.—Can a link of a Chain Cable be formed by compression instead of welding; and, if so, the probable result as to its strength.

We have instituted experiments to ascertain the relation existing between the strength of a chain cable and that of the iron of which it is composed.

An account of these experiments is given in the Appendix (page 85.)

The

The general result is, that the strength of a chain cable, with stay-pins, is early twice as great as that of the iron of which it is composed.

Chain cable nearly twice as strong as the iron of which it is composed.

An ingenious mode of forming a link of a chain cable by compression, instead of welding, has been submitted to us by Mr. Young, Bostock-street, Old Gravel-lane. His method consists of using half-round iron, and of forming with it a link somewhat upon the principle of the split key-ring. The chief advantage proposed to be gained is, that of getting rid of the risk of imperfect welding. But it is supposed by the inventor to be rather more expensive than the present system, of which we can entertain no doubt.

Mr. Young's method of forming links by compression.

But since by his method, or, in fact, by any method whatever, it is impossible to obtain greater strength than twice that of the round-iron of which the link is composed; and since the strength of his link would probably be less than this, and since also the strength of the present link has been proved to be nearly double that of the round iron, it has been considered inexpedient to institute experiments on Mr. Young's plan, as not likely to lead to any useful result. In addition to which it may be stated, that the advantage of getting rid of the welding is more than counterbalanced by the additional cost, and by the injury likely to be sustained by the access of salt water to the interior surfaces of the links.

Reasons for not trying his plan.

SECTION 7.—The best mode of preserving chain cables, whether by galvanizing or other process; and the probable cost of such process, as compared with the value of the iron.

We have obtained information on the galvanizing of chain cables. A letter on this subject from Messrs. Morewood & Rogers, who have applied this process to chain cables for private individuals, stating the cost of the operation, is given in the Appendix, p. 63.

Galvanizing chain cables.

We have had sufficient experience of one process of galvanizing to be enabled to state that, under ordinary exposure to air and moisture, it prevents the oxidation of the iron. It also retards its destruction under all circumstances, even when exposed to the action of sea water, but does not ultimately resist it.

It does not ultimately resist the action of salt water.

The present method of preserving the chain cables in store by paying them over with thin black paint is found to be effectual, and, therefore, the additional cost of galvanizing need not be resorted to so far as preserving them in store is concerned.

Black paint good for preserving chain cables in store.

And it is submitted that the peculiar destructive action to which chain cables are exposed in actual service would not be greatly diminished by the process of galvanizing.

Galvanizing would not diminish the action to which they are subject in actual use.

This destructive action is of two kinds :

This action is of two kinds.

1st. The links are found to wear by rubbing against each other, particularly at their ends on the inside. This kind of mechanical action would not be much diminished by their being galvanized.

2nd. They are found to be injured by being what is called "water-washed;" that is, the portion of the cable which is at the bottom of the chain cable locker, is found to be more corroded than any other part. This is owing to the water, which finds its way into the chain cable lockers; increased sometimes in small ships by the washing of the lower deck. This destructive agency would be retarded, but not ultimately prevented, by galvanizing.

Upon the whole, therefore, in consequence chiefly of the increased expense, we are not prepared to recommend that the process of galvanizing be applied generally to chain cables; but we submit that a comparison be made, for the sake of experiment, between the galvanized and the ordinary chain cable, by using them on different sides of the same ship, thus to prevent the contact of the two kinds in the same locker. And in order to institute a comparison between the two processes of galvanizing for this purpose, we submit that a certain number

Recommendation on the subject.

of

of chain cables be galvanized by each party, viz., by Messrs. Malins & Rawlinson, the patentees of the galvanized iron, and by Messrs. Morewood & Rogers, the patentees of the galvanized *tinned* iron.

One mode of preserving chain cables.

With respect to the best mode of preserving chain cables, we are of opinion that it is not desirable to keep the same end always buried in the lockers. By occasionally shifting the lengths so as to bring each in its turn to the anchor, the wear of the cable will be more uniformly distributed throughout its whole length. This shifting of the lengths may take place whenever the chain cables are taken up for examination, the more frequent necessity for which we have already alluded to at page 14.

SUNDRY REMARKS and RECOMMENDATIONS which do not precisely come under any of the foregoing Heads.

Questions asked in the dockyards.

IN visiting the dockyards we requested replies to the following questions. They will be found in the Appendix (page 53 to 58):—

1. What articles of iron or other metals, now made by contract, might be better made in the dockyards?
2. What articles of metal were reported last quarter to spare to other yards?
3. An account of the number and sizes of chain cables of the old contract having stay-pins in the end links, now in store for sea service?
4. An account of obsolete unserviceable anchors at present in store?
5. An account of the expenditure of coals in the smitheries for the three years ending 30th June 1845?
6. An account of the weight of iron-work issued at the smitheries during the three years ending 30th June 1845?

Articles now made by contract which might be better made in the yards.

1. With respect to the articles now supplied by contract which might be better made in the dockyards, as shown in the replies to the first query, we beg to state that many of the articles which have caused accidents by their fracture have been made by contract, such as tackle-hooks, ring and eye bolts, &c.

Many such articles might be made at the normal smithery.

At the normal smithery which we have submitted should be established at Deptford, it will perhaps be found practicable, as it is certainly desirable, to manufacture many articles of iron for the naval service which are now supplied by contract: it will be desirable because there we shall be able to rely upon the best materials and workmanship.

Store of obsolete metal articles to be surveyed and disposed of.

2. There would be propriety in causing a survey to be made of the various iron and metal articles in store at the several yards, in order to prevent an accumulation of such as are obsolete. The metal of which some such articles are composed might be used for other purposes, and thus expense would be saved.

Chain cables of the old contract.

3. With respect to the store of chain cables of the old contract, having stay pins in the end links, we beg to submit that a survey be held upon them, and that those which shall be thought fit for sea service be made conformable to the present contract, as regards the end links and shackles, and tested after the alteration, to the usual strain, and that the remainder be appropriated to harbour use, or otherwise disposed of.

Unserviceable anchors.

4. All the obsolete unserviceable anchors might hereafter be beneficially worked up under the steam hammers and at the rolling mills into a very superior wrought-iron. We submit that they be retained for this purpose.

Comparison of coals used and iron-work pro-

5 & 6. The relation between the quantity of coal used and that of the iron-work produced at the several smitheries is a measure (to some extent) of the economy

economy used. In order to form a fair average we have included a space of three years. The following are the results :—

	Coals.		Iron.	Tons of Coal to One Ton of Iron.
	Tons.		Tons.	
Chatham - - -	3,361	- - - -	1,367	2·46
Portsmouth - -	3,525	{also 5 tons weekly for tilt hammer }	1,512	2·33
Sheerness - - -	2,817	- - - -	905	3·11
Devonport - - -	5,837	- - - -	2,820	2·07
Woolwich - - -	—	—	—	—

From the above it would appear that the greatest economy is used at Devonport. It would be of importance to endeavour to account for this by a more minute examination into the processes used than we have hitherto been enabled to make.

Tackle Hooks.—The tackle hooks of the present pattern are superior in strength and workmanship to those of the old pattern. It is desirable that none of the old pattern be in future used.

We recommend that experiments be made upon tackle hooks of all sizes so as to ascertain their average ultimate strength ; and that a number be stamped upon every hook to show the greatest weight proper to attach to it. This will be a useful guide in the application of them ; and, if attention be paid to it in actual service, it is hoped that the very serious accidents which have frequently occurred from their fracture, may in future be prevented.

Hooks to Blocks.—To be made of such a form as best to resist fracture. The place of contact of the hook should be vertically under the pin of the block. It is desirable that patterns of the best form of hooks be provided to be conformed to in all cases.

Compressed Treenails.

An ingenious and successful mode of compressing treenails, wooden pins, &c., has been submitted to us by Mr. Charles May of Ipswich, who has furnished us with the means of trying experiments on their strength.

The treenails we tried were originally 1½ inches diameter, and were compressed to a diameter of 1⅝ inches ; the cost of the process being from 10s. to 15 s. per thousand.

We have instituted experiments in order to ascertain the relative holding power (in the direction of their length) of the compressed and uncompressed treenails of the same diameter. Two treenails of each kind were selected in each experiment for fastening together two pieces of timber, all of which were placed in the water for some weeks so as to enable the treenails to swell. The two pieces of timber in each experiment were afterwards drawn asunder by mechanical force, and it was found that the holding power of the compressed treenails was to that of the uncompressed about as 5 to 3.

We have also ascertained the transverse strength of the compressed treenail to be to that of the uncompressed, of the same diameter, as 102·5 to 78·5, or nearly as 4 to 3.

We thus find ourselves furnished with a cheap fastening of much greater holding power, and of greater transverse strength, than the ordinary treenail.

We submit that they might always be used with advantage in lieu of the ordinary treenail ; because, since the same degree of strength would be obtained in a smaller hole, the timbers of the frame of the ship and the planking of the bottom would be less injured. This is an advantage which applies especially to smaller vessels.

Compressed tree-nails might sometimes take the place of metal fastenings.

Further experiments recommended.

Method of reducing the hæmatite iron ore.

Mr. Fincham on smiths' accounts, experiments, &c.

Protection of iron work on mooring buoys.

Visits to the dock-yards.

Washing sullage.

Brass and iron foundries should be in all the dock-yards.

Muntz's machine for shearing sheets.

Machine for straightening bolt-staves.

Galvanised tinned iron to be further experimented on.

Drilling machine required at Sheerness.

We are also of opinion that, in many cases these compressed treenails might be substituted for metal fastenings in the planking of ships, by which a considerable saving would be effected.

We beg, therefore, to recommend that arrangements be made with Mr. May, the patentee, for compressing, as early as convenient, a large quantity of treenails for further experiment, to be used in the several dockyards, in lieu of the ordinary treenail, subject to the directions of the Surveyor of the Navy.

We take this opportunity of thanking Messrs. Rushton & Eckersley, of Bolton, for an interesting memoir on the new method of reducing the hæmatite iron ore without the intervention of the blast furnace, thus diminishing greatly the expense and labour of producing the wrought iron. (*Vide Appendix, page 73.*)

In a letter from the above gentleman which follows this memoir it is stated, that in one instance they succeeded in obtaining from the ore a bar of wrought iron in 45 minutes.

We have also to thank Mr. Fincham, the Master Shipwright of Portsmouth Dockyard, for some papers he has laid before us (*Appendix, page 63*), showing a method he adopted in Chatham Dockyard for keeping smiths' accounts; also results of some interesting experiments on the strength of iron, of links of chain, &c. &c.

We have been favoured with copies of correspondence between the Board of Works in Dublin and Professor Davy, on the subject of protecting the iron-work of the mooring-buoys in Kingstown Harbour, from the corrosive action of sea-water. (*Vide Appendix, p. 78.*) The subject is interesting, and the experiments of Professor Davy may be found useful in leading to the adoption of a similar mode of protection where necessary, in other harbours.

In the course of our visits to the dockyards, the following matters have been brought under our notice, which we beg to submit to the consideration of your Lordships.

1. In Portsmouth and Devonport Dockyards, the sullage or sweepings of the docks are washed, so as to separate the metal from the dirt. This is an economical and efficient mode of doing it. We recommend that it be adopted in all the dockyards.

2. In Devonport Dockyard there is a great want of a brass foundry, and also of a small iron foundry. We submit that no dockyard should be without them; they can be erected at a small cost; and the advantage of making our own castings, especially in metal, in which we can rely upon the integrity of the mixture, is very great. No private establishment carrying on works similar to those in a dockyard, and of equal magnitude, would be without iron and brass foundries.

3. At Mr. Muntz's works we saw in operation an excellent machine for shearing the sheathing sheets. Such a machine (called a shearing table) would be very serviceable at the metal mills of Portsmouth and Chatham Dockyards; it would be worked at much less expense than our present mode. We submit that two shearing-tables be ordered accordingly. Mr. Muntz, himself, would probably supply them.

4. By the introduction of machines for straightening bolt-staves (which is the last process in their manufacture), labour would be saved in our metal mills. We submit that two be accordingly ordered, one for Portsmouth, the other for Chatham.

5. The experiments on the galvanised tinned iron having been, to some extent, successful on the bottom of a boat in Portsmouth Harbour, we beg to recommend that at least 500 of such sheets be purchased for experiments on a larger scale.

6. An additional drilling machine would be useful in Sheerness Dockyard.

7. The single-station men in the several dockyards (one in each) who were selected on account of their superior intelligence to record the state of the copper on ships in a given form, and to attend generally to the subject of copper in each dockyard, being paid at different rates, in some, 4 s. 6 d., and at Devonport, 5 s. per diem, we submit that they be all paid 5 s. per diem.

The men who have charge of the copper accounts to be paid alike in all the dockyards.

8. We recommend that a small steam engine, of about 4-horse power, be erected at Portsmouth to work the chain-cable cleaning machine; and it might be advantageously employed also to work the testing machine.

Small steam-engine to work machine for cleaning chain cables.

9. We recommend that each dockyard should contain a store of iron framings and of corrugated iron for making temporary roofs. Such roofs are frequently required, not only over stacks of timber and other materials, but also during the prolonged repair of a ship in an uncovered dock. The expense occasioned by the unavoidable waste in the use of timber materials for temporary roofs, would thus be saved.

Iron framings and corrugated iron to be always kept in store for temporary roofs.

RECAPITULATION.

IN laying before your Lordships the foregoing Report, we beg to recapitulate, as concisely as possible, the several recommendations which occur therein, the arguments in favour of which will be found in the body of the report, at the pages marked against each.

- | | |
|---|----------------|
| 1. New iron should be kept under cover. | Page 2. |
| 2. Means to be provided in the dockyards for re-manufacturing the whole of the suitable scrap and old iron which arises in the service. | Page 2. |
| 3. Scrap iron to be cleaned in the chain cable cleaning machine. | Page 3. |
| 4. The smiths in the several yards should be duly instructed on the subject of proper welding, especially of so forming the two welding surfaces, as to force out all scoria, cinder, &c. | Pages 3 to 5. |
| 5. Coals to be slightly carbonised prior to use in smith's fires. | Pages 5 and 6. |
| 6. Certain bad practices in the working of iron to be discontinued. | Page 6. |
| 7. To substitute air furnaces in lieu of hollow fires. | Page 6. |
| 8. To substitute for the piling of iron, rough forgings obtained from scrap iron under steam hammers, of which a store should always be kept. | Page 6. |
| 9. To abolish cold hammering, unless the articles can be afterwards annealed. | Page 6. |
| 10. To introduce annealing furnaces generally into the dockyards. | Page 6. |
| 11. Articles of iron work to be marked, after being annealed. | Page 7. |
| 12. The smiths to be supplied with such proper and useful tools as may be necessary. | Page 7. |
| 13. More attention to be paid in dockyard smitheries to the subject of keeping tools in order. | Page 7. |
| 14. The construction of the smaller smiths' fires to be improved. | Page 7. |
| 15. The smitheries to be well lighted, and kept free from smoke. | Page 7. |
| 16. The face of Hercules, and all large hammers, to be properly rounded at the edges. | Page 7. |

- Page 7. 17. The master smith to inform himself of what articles of iron work may be in store, so as to prevent the otherwise loss of time in making them.
- Page 7. 18. To introduce a class of hammermen into the dockyard smitheries.
- Page 8. 19. Each article to be marked with the initials of the smith who made it.
- Page 8. 20. To try new iron hot as well as cold, prior to receipt from the contractors.
- Page 8. 21. The best practice to be uniformly adopted in all the dockyards, of examining tools and other articles of iron and metal, prior to receipt from the contractors.
- Page 8. 22. Proper scales to be provided at the several smitheries.
- Page 8. 23. To appoint a man in each smithery to collect, arrange, and take care of short pieces of iron, &c.
- Page 8. 24. Uniformity of threads of screws to be established in all the yards.
- Page 9. 25. Certain accounts of smiths' work to be kept in the dockyards of Portsmouth and Woolwich, as an experiment, for 12 months.
- Page 10. 26. Proof strain of anchors and chain cables not to be altered.
- Page 11. 27. The prices to be paid for chain cables, in future, to depend upon their absolute strength, which is to be ascertained by breaking some of the links; and the scale of prices to be so graduated that the contractors' profit shall be greatest upon the best cables.
- Page 12. 28. All anchors and chain cables to be, in future, annealed.
- Page 12. 29. Testing houses :
- (1.) Forms to be filled up of articles tested.
 - (2.) Single stationed men to be appointed to perform the several duties.
 - (3.) The testing machines themselves to be examined from time to time.
- Page 13. 30. Naval officers to state minutely the circumstances under which anchors and other articles of iron work break or become otherwise injured, in service.
- Page 13. 31. To form one well furnished establishment for the manufacture of the largest articles of iron work.
- Page 13. 32. Description of articles to be made there.
- Page 13. 33. Such an establishment would form a normal school for training men to become masters and foremen of smiths for the several dockyards.
- Page 14. 34. Proposed to establish the Normal Smithery at Deptford.
- Page 14. 35. To appoint an intelligent shipwright in each dockyard to have the charge of making patterns for all fittings for chain cables, &c. on board ship.
- Page 14. 36. To direct the attention of naval officers to the importance of not riding with too short a scope of chain cable.
- Page 14. 37. Also, of occasionally veering out a short length when riding heavily, to prevent the prolonged action upon the same links at the hawseholes, &c.
- Page 14. 38. Imperatively necessary to periodically examine chain cables on board ship, and to introduce tallow into the swivels and shackle-bolts to prevent the too frequent accident of their being set fast.

39. To examine them every three months, to enter examination in the log, and the logs to be examined by a proper officer on shore to certify attention to this duty. Page 14.
40. To make comparison, for the sake of experiment, between the galvanised and the ordinary chain cable, by using them on different sides of the same ship. A certain number of chain cables to be galvanised for this experiment, by the two processes. Page 15.
41. To distribute the wear of the chain cable more uniformly throughout its whole length, by occasionally shifting the lengths, so as to bring each in its turn to the anchor. Page 16.
42. Desirable to make many articles at the proposed Normal Smithery which are now made by contract. Page 16.
43. Stores of obsolete metal articles at the several dockyards to be surveyed and disposed of. Page 16.
44. Chain cables of the old contract to be made conformable to the new, and to be tested before being issued for sea service. Page 16.
45. To return all obsolete unserviceable anchors to be worked up in the dockyards, into wrought-iron bars, &c. under the steam hammers and rolls. Page 16.
46. To issue for sea service no more tackle-hooks of the old pattern. Page 17.
47. Tackle-hooks to be marked to show the greatest weights proper to attach to them; experiments to be instituted to determine the weight in each case. Page 17.
48. Hooks of blocks to be made of such a form as best to resist fracture. Page 17.
49. Experiments to be tried on compressed treenails, as fastenings for ships, subject to the directions of the Surveyor of the Navy. Pages 17 and 18.
50. Sullage to be washed in other yards as practised at Portsmouth and Devonport. Page 18.
51. Brass and iron foundries required in Devonport dockyard. Such foundries should be in all the yards. Page 18.
52. Shearing tables to be obtained for the metal mills of Portsmouth and Chatham. Page 18.
53. Also bolt straightening machines for the metal mills of Portsmouth and Chatham. Page 18.
54. Further experiments to be made on the galvanised tinned iron. Page 18.
55. The men who have charge of the copper accounts to be paid alike in all the yards. Page 19.
56. Small steam engine to be erected at Portsmouth to work the chain cable cleaning machine. Page 19.
57. Iron framings and corrugated iron to be always kept in store for temporary roofs. Page 19.

In laying this Report before your Lordships, we beg to express our strong conviction, that the efficient carrying out of the various recommendations contained in it, and our former Report, will render absolutely necessary the appointment of a fit and responsible person to whom would be referred all questions relating to the subjects to which your Lordships have been pleased to direct our attention.

He would be required frequently to visit the several dockyards, not only to enforce

enforce uniformity of practice, but, from time to time, to suggest for your Lordships' consideration, such alterations, as, from an enlarged acquaintance with what may become the practice in the best private establishments, and from his own personal experience in the dockyards, he may deem necessary to give full effect to the objects which your Committee have had in view.

We are satisfied that the general superintendence of all matters relating to the sheathing of ships, the works carried on in the metal mills of Portsmouth and Chatham, the business done at the testing-houses and smitheries of the several dockyards, the recording of, and drawing practical inferences from, the numerous experiments which are always in progress in the dockyards and in the various private establishments to which he may have access, would not only afford him full occupation, but that the appointment of such an officer would be attended with great advantage to Her Majesty's service.

Somerset House,
26 February 1846.

(signed) *H. R. Brandreth.*
T. Lloyd.
Jeremiah Owen.
James Nasmyth.

SUPPLEMENT TO SECOND REPORT.

To the Right Honourable the Lords Commissioners of the Admiralty.

WE, the undersigned, appointed by your Lordships on a Committee for the purpose of investigating the several matters relating to the application of iron, copper, and other metals to the Naval Service, beg most respectfully to submit, as a supplement to our Second Report, the following observations on some important results of experiments made on the strength of wrought-iron bars, &c.

2. Considering the question to be of great importance as to how far severe strains affect the strength of iron, your Committee thought it right to institute a series of experiments on this subject.

3. We have already stated, in our Second Report, that we were satisfied from the experiments we had then made, that it would not be advisable to diminish the proof-strain upon either anchors or chain cables.

4. The results of the experiments we are now about to submit to the attention of your Lordships, not only confirm us in this opinion, but clearly show that very heavy strains, even to the extent of the breaking strain (that is, equal to the strength of the iron itself), and this, even several times repeated, were found not only not to weaken the iron, but actually to increase its strength by every application.

5. This conclusion clearly obtains from the following results of the several experiments :—

	Mean Breaking Strain.					
1st Fracture	-	-	-	-	-	33½ tons.
2nd "	-	-	-	-	-	35½ "
3rd "	-	-	-	-	-	37½ "
4th "	-	-	-	-	-	40½ "

6. It will also be seen by inspection of the accompanying table of experiments, page (24,) not only that the breaking strains are extremely regular, but also that the greatest breaking strain in one series of fractures is always equal to, or less than the least strain in the next series.

7. These facts appeared so important, and were so much opposed to the opinion of the best informed persons upon the subject, that in order to prove, beyond all question, that the increased strength was due to the repeated previous strains

trains, and not to the diminished length of the bars, we considered it proper to make experiments upon this point; we therefore took several bars of the same kind of iron, and of the same diameter, but varying in length from 10 inches to 10 feet, and found that they were all equally strong. (Page 25.)

8. It may be proper to state the circumstances which usually attend the fracture of iron bars: namely, that considerable heat is evolved at the breaking place, and that the diameter of the bar is everywhere reduced, but particularly so at the place of fracture; but it is worthy of remark that at the second and subsequent fractures of the bars it generally happened that little or no heat was given out at the place of fracture, and that the general diameter of the bar was not again sensibly reduced, except in some instances, at the place of fracture.

9. The fact of the reduction in the size of the iron bars after being subjected to a breaking strain, or even less, may have partly caused the prevalent opinion of its diminution of strength, an opinion, however, which our experiments have shown to be incorrect.

10. The accompanying papers contain also (pages 26 and 27), results of experiments made to ascertain the effect of galvanising upon the strength of wrought-iron bars, &c. It had been supposed that this process had the effect of weakening the iron; and since the use of galvanised iron is so much increasing, your Committee felt it to be of importance to ascertain whether the iron were really injured or not.

11. It appears, however, from the results of numerous and varied experiments, that the strength of the iron may be said not to be affected by the process of galvanising.

12. In our first Report (page 91,) we gave the results of some experiments made in 1835, on the strength of bolt-staves of Muntz's metal; and we there stated it to be our intention to make further experiments in consequence of improvement said to have been introduced into the manufacture of this metal since that date.

13. These experiments have now been made, and are detailed at pages 33 and 34; they show that the average strength of Muntz's metal boltstaves per square inch, is greater than in 1835, and also greater than that of either iron or copper. (Page 34.)

14. Some of the boltstaves were also broken a second time, and it will be seen that some increase of strength was the result of the first breakage.

15. Under the circumstances, therefore, of the relative strength of Muntz's metal boltstaves, and of the good opinion entertained of it in other respects by some of the leading merchant shipbuilders on the Thames (as shown in our first Report, pages 93, 94) your Committee are of opinion that this metal may be advantageously used for fastenings in Her Majesty's ships.

Somerset House,
May 1846.

(signed) *H. R. Brandreth.*
T. Lloyd.
Jeremiah Owen.
James Nasmyth.

EXPERIMENTS made in the TESTING MACHINE of Woolwich Yard to ascertain the Effect upon IRON BOLTSTAVES of the Breaking Strain.

The following Results show the Strains required for each of four successive Breakages of the same pieces of Iron.

1 3/8 Inches Diameter. S. C. 

Distinguishing Mark.	1st Breakage.		2nd Breakage.		3rd Breakage.		4th Breakage.		
	Stretch in 54 Inches.		Stretch in 36 Inches.		Stretch in 24 Inches.		Stretch in 15 Inches.		Reduced to Inches.
	Tons.	Inches.	Tons.	Inches.	Tons.	Inches.	Tons.	Inches.	Inches.
A	33 1/4	9 1/8	35 1/2	2	—	—	—	—	—
D	32 1/2	9 1/4	35 1/4	1/4	37	1	38 1/2	- -	1 1/4
E	32 1/2	9 1/4	34 3/4	1 1/4	—	—	—	—	—
F	33 1/4	10 1/2	35 1/2	1 1/8	37 1/4	5/8	40	- -	1 3/16
G	32 3/4	8 1/2	35	1 1/4	37 1/2	- -	41	- -	1 1/4
H	33 1/4	10 5/8	36 1/4	1 7/8	—	—	—	—	—
I	33 1/2	8 3/8	34 1/2	5/8	36 1/2	1 1/2	—	—	—
J	33 1/4	9 1/4	36	1/2	36 3/4	1 1/8	41 3/4	- -	1 1/4
L	32 1/4	defective -	36 1/2	1 1/2	37 3/4	- -	41	5/16	1 1/4 B
M	30 1/4	ditto -	36 1/2	5/8	37 3/4	1/16	38 1/2	1 1/16	1 1/4
Means - -	33 1/4	- -	35 3/4	- -	37 1/4	- -	40 1/6	- -	- -
Ditto per Square Inch - -	22.4	- -	24.08	- -	25.09	- -	27.05	- -	- -

EXPERIMENTS made to ascertain whether a Shorter Bar of Iron is stronger than a Longer one of the same kind and size.

1 3/8 Inches Diameter. S. C. 

Length between the Nippers, 10 Feet.					
Distinguishing Mark.	Stretch in 10 Feet.	Breaking Strain.	Means.	Reduced to	
				At Fracture.	Elsewhere.
	<i>Inches.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Inches.</i>	<i>Inches.</i>
1	26	33	- -	1	1½
2	26¾	31½	- -	"	1⅜
3	26¼	32½	32·21	"	1¼
4	23	32		"	"
5	27½	32¼	- -	" B	" B
6	26¾	32	- -	1⅙	"
Length between the Nippers, 42 Inches.					
B	9½	32½	- -	1⅙	1½
B	9⅜	33	- -	" B	"
B .	10¼	31½	32·125	1	" B
B .	10⅜	31½		1	" B
B ..	8⅝	32	- -	1⅙	" F
B ..	8⅞	32	- -	" F	" F

Experiments made to ascertain whether a Shorter Bar of Iron is stronger, &c.—*continued.*

Length between the Nippers, 36 Inches.

Distinguishing Mark.	Stretch in 10 Feet.	Breaking Strain.	Means.	Reduced to	
				At Fracture.	Elsewhere.
	<i>Inches.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Inches.</i>	<i>Inches.</i>
A	8 $\frac{1}{2}$	32 $\frac{1}{4}$	} - - { 32·25	1 $\frac{1}{16}$	1 $\frac{1}{4}$
A	8 $\frac{3}{4}$	32 $\frac{1}{4}$		1	„ B
A .	9	31 $\frac{1}{2}$		„ F	„ B
A .	9 $\frac{1}{8}$	31 $\frac{1}{2}$		„	„
A . .	9 $\frac{3}{8}$	33 $\frac{1}{2}$		„ B	„ B
A . .	8 $\frac{7}{8}$	33 $\frac{1}{4}$		„ B	„ B

Length between the Nippers, 24 Inches.

	Stretch in 24 Inches.				
C 1	6	31 $\frac{3}{4}$	} - - { 32·00	1	1 $\frac{1}{2}$
C 2	6 $\frac{5}{8}$	31 $\frac{1}{2}$		1 $\frac{1}{16}$ B	„ F
C 3	6 $\frac{1}{8}$	32 $\frac{1}{2}$		1	„
C 4	6 $\frac{1}{8}$	31 $\frac{3}{4}$		1 $\frac{1}{16}$	„
C .	6	32 $\frac{1}{4}$		1	„
C .	6 $\frac{3}{8}$	32 $\frac{1}{4}$		„	„ B

Length between the Nippers, 10 Inches.

A	4	32 $\frac{1}{4}$	} - - { 32·29	1 $\frac{1}{16}$	1 $\frac{1}{2}$
A	3 $\frac{7}{8}$	32 $\frac{1}{2}$		„	,
A .	4 $\frac{5}{8}$	30 $\frac{1}{2}$		„ B	„ B
A .	4 $\frac{3}{4}$	31 $\frac{1}{2}$		1	1 $\frac{3}{16}$
A . .	4	33 $\frac{1}{4}$		„	1 $\frac{1}{2}$
A . .	4 $\frac{1}{8}$	33 $\frac{3}{4}$		„	„

ABSTRACT of the Foregoing.

Length between the Nippers.	Breaking Strain, in Tons.
<i>Inches.</i>	
120	32·21
42	32·125
36	22·35
24	32·00
10	32·29

EXPERIMENTS made at the Testing House of WOOLWICH DOCKYARD, to ascertain the Effect of Galvanising upon the Strength of Wrought Iron.

S.  C. Round Iron, 22 Inches between the Nippers.

By whom Galvanised.	Diameter.	Stretch in 20 Inches.	Breaking Strain.	Means.	Reduced to		REMARKS.	
					At Fracture.	Elsewhere.		
	<i>Inches.</i>	<i>Inches.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Inches.</i>	<i>Inches.</i>		
Malins & Rawlinson	1 $\frac{3}{4}$	4	54 $\frac{1}{2}$	52·875	1 $\frac{1}{2}$	1 $\frac{9}{16}$ B		
	"	3 $\frac{3}{8}$	51 $\frac{1}{4}$		1 $\frac{9}{16}$	1 $\frac{9}{16}$ B		
The last was broken again.								
Ditto - - -	1 $\frac{3}{4}$	-	59 $\frac{1}{4}$	- -	1 $\frac{7}{16}$	1 $\frac{9}{16}$	Fracture, quite cold.	
Morewood & Rogers	1 $\frac{3}{4}$	5 $\frac{1}{8}$	53 $\frac{1}{2}$	53·375	1 $\frac{5}{16}$	1 $\frac{10}{16}$		
	"	5 $\frac{5}{8}$	53 $\frac{1}{4}$		1 $\frac{5}{16}$	1 $\frac{9}{16}$		
Not galvanised -	1 $\frac{3}{4}$	5 $\frac{1}{2}$	47 $\frac{3}{4}$	52·833	1 $\frac{5}{16}$	1 $\frac{9}{16}$	Broke in  , to be dis- regarded.	
	"	5 $\frac{1}{4}$	52 $\frac{1}{4}$		-	-		
	"	3 $\frac{3}{4}$	53 $\frac{3}{4}$		-	-		
	"	5 $\frac{5}{8}$	52 $\frac{3}{4}$		-	-		
Malins & Rawlinson	1 $\frac{1}{2}$	4 $\frac{7}{8}$	40 $\frac{3}{4}$	40·75	1 $\frac{9}{16}$	1 $\frac{6}{16}$	Broke in  .	
	"	2 $\frac{3}{4}$	40 $\frac{3}{4}$		1 $\frac{5}{16}$	"		
Morewood & Rogers	1 $\frac{1}{2}$	4 $\frac{7}{8}$	39	39·625	1 $\frac{9}{16}$	1 $\frac{6}{16}$		
	"	5 $\frac{1}{4}$	40 $\frac{1}{4}$		"	"		
Not galvanised -	1 $\frac{1}{2}$	5 $\frac{5}{8}$	39 $\frac{1}{2}$	39·375	1 $\frac{1}{16}$	1 $\frac{5}{16}$	Very irregular.	
	"	4 $\frac{1}{2}$	39 $\frac{1}{4}$		1 $\frac{9}{16}$	1 $\frac{6}{16}$	Tapered.	
	"	4 $\frac{7}{8}$	39		1 $\frac{3}{16}$	1 $\frac{5}{16}$	Broke in  , to be dis- regarded.	
	"	4 $\frac{3}{8}$	38 $\frac{1}{2}$		1 $\frac{1}{16}$	"	Overheated.	
Malins & Rawlin- son - - -	1 $\frac{3}{16}$	$\frac{3}{4}$	21 <i>Qy.</i>	27·5	1 $\frac{9}{16}$	Not diminished.		
	"	4 $\frac{7}{8}$	27 $\frac{1}{2}$		1 $\frac{1}{16}$	-		
Morewood & Rogers	1 $\frac{3}{16}$	6 $\frac{3}{4}$	27 $\frac{1}{4}$	27·375	1	1 $\frac{1}{16}$		
	"	2	27 $\frac{1}{2}$		1 $\frac{9}{16}$	1 $\frac{9}{16}$		
Not galvanised -	1 $\frac{3}{16}$	5 $\frac{1}{2}$	26 $\frac{1}{2}$	27·06	1 $\frac{5}{16}$	1 $\frac{1}{16}$		
	"	3 $\frac{1}{4}$	26 $\frac{1}{4}$		1 $\frac{1}{16}$	1 $\frac{9}{16}$		
	"	4 $\frac{1}{4}$	27 $\frac{3}{4}$		"	"		
	"	3 $\frac{1}{4}$	27 $\frac{3}{4}$		"	"		
Malins & Rawlin- son - - -	1	4 $\frac{3}{4}$	18 $\frac{3}{4}$	19·125	1 $\frac{3}{16}$	1 $\frac{4}{16}$		
	"	4 $\frac{3}{8}$	19 $\frac{1}{2}$		"	1 $\frac{3}{16}$		
Morewood & Rogers	1	5 $\frac{1}{8}$	19	19·25	1 $\frac{1}{16}$	1 $\frac{4}{16}$		
	"	4 $\frac{3}{8}$	19 $\frac{1}{2}$		1 $\frac{3}{16}$	"		

EXPERIMENTS made at the Testing House of Woolwich Dockyard, &c.—*continued.*

By whom Galvanised.	Diameter.	Stretch in 20 Inches.	Breaking Strain.	Means.	Reduced to		REMARKS.
					At Fracture.	Elsewhere.	
	<i>Inches.</i>	<i>Inches.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Inches.</i>	<i>Inches.</i>	
Not galvanised -	1	4 $\frac{7}{8}$	19 $\frac{1}{2}$	- -	1 $\frac{2}{16}$	1 $\frac{4}{16}$	
	"	"	19 $\frac{3}{4}$	19.25	1 $\frac{1}{16}$	1 $\frac{2}{16}$	
	"	5 $\frac{1}{8}$	18 $\frac{3}{4}$		"	1 $\frac{1}{16}$	
	"	4 $\frac{1}{8}$	19	- -	1 $\frac{2}{16}$	"	
Malins & Rawlinson	$\frac{3}{4}$	3 $\frac{7}{8}$	10 $\frac{3}{4}$	11.00	1 $\frac{9}{16}$	1 $\frac{10}{16}$	
	"	4 $\frac{1}{8}$	11 $\frac{1}{4}$		1 $\frac{8}{16}$	"	
Morewood & Rogers	$\frac{3}{4}$	4 $\frac{3}{4}$	10 $\frac{3}{4}$	10.625	1 $\frac{8}{16}$	1 $\frac{10}{16}$	
	"	5	10 $\frac{1}{2}$		"	"	
Not galvanised -	$\frac{3}{4}$	4 $\frac{1}{2}$	11	- -	1 $\frac{8}{16}$	1 $\frac{10}{16}$	
	"	5 $\frac{3}{8}$	10 $\frac{1}{4}$	10.688	"	"	
	"	4 $\frac{3}{4}$	11		"	"	
	"	5 $\frac{1}{4}$	10 $\frac{1}{2}$	- -	"	"	
Malins & Rawlinson	$\frac{1}{2}$	4 $\frac{1}{8}$	4 $\frac{1}{4}$	4.125	1 $\frac{6}{16}$ B	1 $\frac{7}{16}$	
	"	4	4		1 $\frac{5}{16}$	" B	
Morewood & Rogers	$\frac{1}{2}$	4 $\frac{1}{8}$	4 $\frac{1}{2}$	4.375	1 $\frac{5}{16}$ F	1 $\frac{7}{16}$	
	"	3 $\frac{1}{4}$	4 $\frac{1}{4}$		"	1 $\frac{6}{16}$	
Not galvanised -	$\frac{1}{2}$	4 $\frac{1}{4}$	4 $\frac{1}{2}$	- -	1 $\frac{5}{16}$	1 $\frac{7}{16}$	
	"	2 $\frac{1}{2}$	4	4.312	" B	" B	
	"	3 $\frac{3}{4}$	4 $\frac{1}{4}$		" B	" B	
	"	3 $\frac{5}{8}$	4 $\frac{1}{2}$	- -	"	"	

ABSTRACT of the Foregoing.

Size of Iron.	BREAKING STRAIN IN TONS.		
	Malins & Rawlinson.	Morewood & Rogers' Galvanised Tinned Iron.	Not Galvanised.
<i>Inches.</i>			
1 $\frac{3}{4}$	52.875	53.375	52.833
1 $\frac{1}{2}$	40.75	39.625	39.375
1 $\frac{3}{16}$	27.5	27.375	27.06
1	19.125	19.25	19.25
$\frac{3}{4}$	11.00	10.625	10.688
$\frac{1}{2}$	4.125	4.375	4.312
Means - -	25.896	25.771	25.586

EXPERIMENTS continued to ascertain the Effect of Galvanising Flat Iron.

By whom Galvanised.	Size.	Stretch in 28 Inches.	Breaking Strain.	Means.	Reduced to		REMARKS.
					At Fracture.	Elsewhere.	
	Inches.	Inches.	Tons.	Tons.	Inches.	Inches.	
Malins & Rawlinson	$4 \times \frac{1}{8}$	$4\frac{5}{8}$	$48\frac{1}{4}$	47.5	$3\frac{3}{4} \times \frac{7}{16}$	$3\frac{3}{4} \times \frac{1}{4}$ B	
	"	$4\frac{5}{8}$	$46\frac{3}{4}$		$3\frac{5}{8} \times \frac{7}{16}$	$3\frac{3}{4} \times \frac{1}{2}$ B	
Morewood & Rogers	$4 \times \frac{1}{2}$	$4\frac{3}{4}$	42	47.75	$3\frac{1}{2} \times \frac{6}{16}$	$3\frac{3}{4} \times \frac{1}{2}$ B	Over-heated, to be disregarded.
	"	$5\frac{1}{2}$	$47\frac{3}{4}$		$3\frac{1}{2} \times \frac{6}{16}$	$3\frac{3}{4} \times \frac{1}{2}$	
Not galvanised	$4 \times \frac{1}{2}$	$4\frac{3}{4}$	$44\frac{1}{4}$	46.5	$3\frac{1}{2} \times \frac{6}{16}$ F	$3\frac{3}{4} \times \frac{1}{2}$ B	Not very sound.
	"	$4\frac{3}{8}$	$49\frac{3}{4}$		$3\frac{1}{2} \times \frac{7}{16}$	$3\frac{3}{4} \times \frac{7}{16}$ F	Highly heated.
	"	$4\frac{3}{4}$	$47\frac{3}{4}$		$3\frac{5}{8} \times \frac{7}{16}$	$3\frac{3}{4} \times \frac{1}{2}$	
	"	$4\frac{1}{2}$	$45\frac{1}{4}$		$3\frac{1}{2} \times \frac{6}{16}$	$3\frac{3}{4} \times \frac{7}{16}$	
		In 20 ins.					
Malins & Rawlinson	$3\frac{1}{2} \times \frac{3}{8}$	$3\frac{3}{4}$	$30\frac{1}{4}$	29.625	$3\frac{3}{8} \times \frac{5}{16}$	$3\frac{3}{8} \times \frac{5}{16}$ F	Broke in the nip.
	"	$2\frac{3}{4}$	29		$3\frac{1}{4} \times "$	$" \times \frac{6}{16}$	
Morewood & Rogers	$3\frac{1}{2} \times \frac{3}{8}$	$3\frac{1}{2}$	$29\frac{1}{8}$	29.0	$3\frac{3}{16} \times \frac{5}{16}$	$" \times "$ B	Not quite sound.
	"	3	$28\frac{7}{8}$		$3\frac{1}{4} \times "$	$" \times "$	
Not galvanised	$3\frac{1}{2} \times \frac{3}{8}$	4	$31\frac{7}{8}$	-	$3\frac{1}{16} \times "$	$3\frac{1}{4} \times "$ B	
	"	$3\frac{1}{4}$	32	-	$3\frac{1}{2} \times "$	$" \times "$	
	"	"	small blister	32.063			
	"	$3\frac{1}{2}$	$32\frac{3}{8}$	-	$3 \times "$	$" \times "$	
	"	$3\frac{3}{8}$	32	-	$3\frac{3}{16} \times "$	$" \times "$	
Malins & Rawlinson	$3 \times \frac{1}{4}$	$3\frac{1}{4}$	$19\frac{3}{8}$	19.5	$2\frac{3}{4} \times \frac{3}{16}$ F	$2\frac{7}{8} \times \frac{4}{16}$ B	
	"	$3\frac{3}{4}$	$19\frac{5}{8}$		$" \times "$	$" \times "$	
Morewood & Rogers	$3 \times \frac{1}{4}$	$2\frac{3}{8}$	$18\frac{3}{4}$	18.938	$2\frac{7}{8} \times "$ F	$3B \times \frac{4}{16}$	
	"	$1\frac{5}{8}$	$19\frac{1}{8}$		$" \times "$ F	$2\frac{1}{2} \times "$ B	Broke in the nip.
Not galvanised	$3 \times \frac{1}{4}$	$3\frac{1}{2}$	$19\frac{7}{8}$	18.812	$2\frac{3}{4} \times \frac{3}{16}$	$2\frac{7}{8} \times \frac{4}{16}$ B	
	"	$\frac{1}{2}$	$15\frac{1}{2}$		-	-	Defect in one corner.
	"	-	14		-	-	Defective.
	"	$2\frac{3}{4}$	$18\frac{1}{2}$		$2\frac{3}{4} \times \frac{3}{16}$ F	$2\frac{7}{8} \times \frac{4}{16}$	
Malins & Rawlinson	$2\frac{1}{2} \times \frac{1}{4}$	3	16	15.875	$2\frac{3}{8} \times \frac{3}{16}$	$2\frac{7}{16} \times \frac{4}{16}$	
	"	$4\frac{3}{4}$	$15\frac{3}{4}$		$2\frac{1}{4} \times "$	$2\frac{3}{8} \times "$ B	
Morewood & Rogers	$2\frac{1}{2} \times \frac{1}{4}$	3	$15\frac{3}{8}$	15.562	$2\frac{1}{4} \times \frac{3}{16}$ F	$2\frac{1}{2}B \times \frac{4}{16}$	
	"	4	$15\frac{3}{4}$		$" \times "$	$2\frac{7}{16} \times "$ B	

EXPERIMENTS continued to ascertain the Effect of Galvanising Flat Iron--*continued.*

By whom Galvanised.	Size.	Stretch in 28 Inches.	Breaking Strain.	Means.	Reduced to		REMARKS.
					At Fracture.	Elsewhere.	
	<i>Inches.</i>	<i>Inches.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Inches.</i>	<i>Inches.</i>	
Not galvanised -	$2\frac{1}{2} \times \frac{1}{4}$	-	14	- -	- -	- -	Broke in the nip.
	"	$3\frac{1}{2}$	$15\frac{1}{2}$	15.292	$2\frac{3}{8} \times \frac{3}{16}$	$2\frac{1}{2} B \times \frac{4}{16} B$	
	"	$3\frac{3}{4}$	$15\frac{3}{8}$		$2\frac{5}{16} \times "$	$2\frac{3}{8} \times "$	
	"	$4\frac{3}{4}$	$15\frac{1}{4}$		$2\frac{1}{8} \times "$	$2\frac{5}{16} \times "$	
Malins & Rawlinson	$2 \times \frac{1}{4}$	$2\frac{1}{2}$	$9\frac{3}{8}$	9.188	$1\frac{7}{8} \times \frac{1}{8}$	$2 \times \frac{3}{16}$	
	"	$1\frac{5}{8}$	9		" $\times$ "	" $\times$ "	
Morewood & Rogers	$2 \times \frac{1}{4}$	3	$9\frac{1}{8}$	9.25	$1\frac{7}{8} \times \frac{1}{16}$	$1\frac{1}{2} \times \frac{3}{16}$	
	"	$3\frac{1}{8}$	$9\frac{3}{8}$		" $\times \frac{1}{8} F$	" $\times$ "	
Not galvanised -	$2 \times \frac{1}{4}$	-	$7\frac{1}{4}$	- -	- -	- -	Very defective.
	"	-	$8\frac{1}{2}$	- -	- -	- -	Broke in the nip.
	"	-	4	- -	- -	- -	Very defective.
	"	$1\frac{3}{4}$	$9\frac{3}{8}$	9.375	$1\frac{7}{8} \times \frac{1}{8}$	$1\frac{1}{2} \times \frac{3}{16}$	

ABSTRACT of the Foregoing.

Size of Iron.	BREAKING STRAIN IN TONS.		
	Malins & Rawlinson.	Morewood & Rogers' Galvanised Tinned Iron.	Not Galvanised.
<i>Inches.</i>			
$4 \times \frac{1}{2}$	47.5	47.75	46.5
$3\frac{1}{2} \times \frac{3}{8}$	29.625	29.00	32.063
$3 \times \frac{1}{4}$	19.5	18.938	18.812
$2\frac{1}{2} \times \frac{1}{4}$	15.875	15.562	15.292
$2 \times \frac{1}{4}$	9.188	9.25	9.375
Means - -	24.337	24.100	24.408

EXPERIMENTS to ascertain the Effect of Galvanising on the Worm of Iron Screw Bolts.

In each case the nuts were screwed on, and the fracture always took place in the worm of the screw.

By whom Galvanised.	Diameter.	Stretch in 28 Inches.	Breaking Strain.	Means.	Size in the Worm at the Point of Fracture.	Size elsewhere.	REMARKS.
	<i>Inches.</i>	<i>Inches.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Inches.</i>	<i>Inches.</i>	
Malins & Rawlinson	$\left\{ \begin{array}{l} 1\frac{1}{4} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} \frac{1}{2} \\ \frac{3}{8} \end{array} \right.$	$\left\{ \begin{array}{l} 18 \\ 17\frac{1}{2} \end{array} \right.$	$\left\{ \begin{array}{l} 17\cdot75 \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{1}{16} \\ 1\frac{1}{16} \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{1}{4} \\ 1\frac{1}{4} \text{ B} \end{array} \right.$	
Morewood & Rogers	$\left\{ \begin{array}{l} 1\frac{1}{4} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} \frac{3}{8} \\ - \end{array} \right.$	$\left\{ \begin{array}{l} 17\frac{3}{4} \\ 16 \end{array} \right.$	$\left\{ \begin{array}{l} 16\cdot875 \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{1}{16} \\ 1 \text{ F} \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{1}{4} \\ \text{,,} \end{array} \right.$	
Not galvanised -	$\left\{ \begin{array}{l} 1\frac{1}{4} \\ \text{,,} \\ \text{,,} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} - \\ \frac{1}{4} \\ \frac{3}{8} \\ \frac{1}{4} \end{array} \right.$	$\left\{ \begin{array}{l} 17\frac{1}{2} \\ 17\frac{1}{2} \\ 18 \\ 17 \end{array} \right.$	$\left\{ \begin{array}{l} 17\cdot5 \end{array} \right.$	$\left\{ \begin{array}{l} 1 \\ \text{,,} \\ 1\frac{1}{16} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} \text{Not} \\ \text{diminished.} \\ 1\frac{3}{16} \\ \text{,, F} \\ 1\frac{1}{4} \end{array} \right.$	
Malins & Rawlinson	$\left\{ \begin{array}{l} 1 \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} - \\ \frac{1}{8} \end{array} \right.$	$\left\{ \begin{array}{l} 12 \\ 12\frac{1}{4} \end{array} \right.$	$\left\{ \begin{array}{l} 12\cdot125 \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{3}{16} \\ \frac{3}{4} \end{array} \right.$	$\left\{ \begin{array}{l} 1 \text{ F} \\ 1 \text{ F} \end{array} \right.$	
Morewood & Rogers	$\left\{ \begin{array}{l} 1 \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} - \\ - \end{array} \right.$	$\left\{ \begin{array}{l} 11 \\ 9\frac{1}{2} \end{array} \right.$	$\left\{ \begin{array}{l} 11\cdot00 \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{3}{16} \\ - \end{array} \right.$	$\left\{ \begin{array}{l} \text{Not} \\ \text{diminished.} \\ - \end{array} \right.$	Unsound.
Not galvanised -	$\left\{ \begin{array}{l} 1 \\ \text{,,} \\ \text{,,} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} \frac{1}{4} \\ \frac{3}{4} \\ \frac{9}{16} \\ - \end{array} \right.$	$\left\{ \begin{array}{l} 12\frac{3}{4} \\ 14 \\ 13\frac{3}{4} \\ 11\frac{3}{4} \end{array} \right.$	$\left\{ \begin{array}{l} 13\cdot06 \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{3}{16} \\ \frac{3}{4} \\ 1\frac{13}{16} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} - \\ \text{,,} \\ \text{,,} \\ \text{,,} \end{array} \right.$	
Malins & Rawlinson	$\left\{ \begin{array}{l} \frac{3}{4} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} \frac{7}{8} \\ \frac{7}{8} \end{array} \right.$	$\left\{ \begin{array}{l} 7\frac{3}{4} \\ 8 \end{array} \right.$	$\left\{ \begin{array}{l} 7\cdot875 \end{array} \right.$	$\left\{ \begin{array}{l} \frac{9}{16} \\ \text{,, B} \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{7}{16} \\ \text{,,} \end{array} \right.$	
Morewood & Rogers	$\left\{ \begin{array}{l} \frac{3}{4} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{3}{16} \\ \frac{5}{8} \end{array} \right.$	$\left\{ \begin{array}{l} 8 \\ 8\frac{1}{4} \end{array} \right.$	$\left\{ \begin{array}{l} 8\cdot125 \end{array} \right.$	$\left\{ \begin{array}{l} \text{,, B} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{11}{16} \\ \text{,, F} \end{array} \right.$	
Not galvanised -	$\left\{ \begin{array}{l} \frac{3}{4} \\ \text{,,} \\ \text{,,} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} 1 \\ 1 \\ 1\frac{1}{16} \\ 1\frac{1}{4} \end{array} \right.$	$\left\{ \begin{array}{l} 8\frac{1}{4} \\ 8 \\ 8 \\ 8\frac{1}{4} \end{array} \right.$	$\left\{ \begin{array}{l} 8\cdot125 \end{array} \right.$	$\left\{ \begin{array}{l} \frac{1}{2} \\ \text{,, F} \\ \text{,, F} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{11}{16} \\ \text{,, F} \\ \text{,, F} \\ \text{,, F} \end{array} \right.$	
Malins & Rawlinson	$\left\{ \begin{array}{l} \frac{1}{2} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{1}{4} \\ 1\frac{3}{16} \end{array} \right.$	$\left\{ \begin{array}{l} 3\frac{1}{4} \\ 3\frac{3}{4} \end{array} \right.$	$\left\{ \begin{array}{l} 3\cdot5 \end{array} \right.$	$\left\{ \begin{array}{l} \frac{5}{16} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} \frac{7}{16} \\ \text{,,} \end{array} \right.$	Thread slipped, not broken.
Morewood & Rogers	$\left\{ \begin{array}{l} \frac{1}{2} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} 1\frac{3}{16} \\ 1\frac{1}{16} \end{array} \right.$	$\left\{ \begin{array}{l} 3\frac{3}{4} \\ 3\frac{3}{4} \end{array} \right.$	$\left\{ \begin{array}{l} 3\cdot75 \end{array} \right.$	$\left\{ \begin{array}{l} \frac{5}{16} \\ \text{,,} \end{array} \right.$	$\left\{ \begin{array}{l} \frac{7}{16} \\ \text{,,} \end{array} \right.$	

EXPERIMENTS to ascertain the Effect of Galvanising on the Worm of Iron Screw Bolts—continued.

By whom Galvanised.	Diameter.	Stretch in 28 Inches.	Breaking Strain.	Means.	Size of the Worm at the Point of Fracture.	Size elsewhere.	REMARKS.
	<i>Inches.</i>	<i>Inches.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Inches.</i>	<i>Inches.</i>	
Not galvanised	$\frac{1}{2}$	$1\frac{5}{8}$	$3\frac{7}{8}$	3.66	$\frac{5}{16}$	$\frac{7}{16}$	Thread slipped, not broken.
	"	2	$3\frac{5}{8}$		"	"	
	"	$2\frac{1}{8}$	$3\frac{1}{2}$		"	" B	
	"	$1\frac{5}{8}$	$3\frac{5}{8}$		"	"	
Malins & Rawlinson	$\frac{3}{8}$	$\frac{9}{16}$	$2\frac{3}{8}$	2.375	$\frac{5}{16}$	$\frac{6}{16}$	
	"	—	—		—	—	
Morewood & Rogers	$\frac{3}{8}$	$\frac{5}{8}$	$2\frac{3}{8}$	2.313	$\frac{5}{16}$	$\frac{6}{16}$	
	"	$\frac{7}{8}$	$2\frac{1}{4}$		" B	"	
Not galvanised	$\frac{3}{8}$	$\frac{7}{8}$	$2\frac{1}{2}$	2.375	$\frac{5}{16}$	$\frac{6}{16}$	
	"	$1\frac{1}{16}$	$2\frac{3}{8}$		"	"	
	"	$\frac{3}{4}$	$2\frac{3}{8}$		" B	"	
	"	$\frac{9}{16}$	$2\frac{1}{4}$		"	"	

ABSTRACT of the Foregoing.

Size of Iron.	BREAKING STRAIN IN TONS.		
	Malins & Rawlinson.	Morewood & Rogers' Galvanised Tinned Iron.	Not Galvanised.
<i>Inches.</i>			
$1\frac{1}{4}$	17.75	16.875	17.5
1	12.125	11.000	13.06
$\frac{3}{4}$	7.875	8.125	8.125
$\frac{1}{2}$	3.5	3.75	3.66
$\frac{3}{8}$	2.375	2.313	2.375
Means - - -	8.725	8.413	8.944

EXPERIMENTS to ascertain the Effect of Galvanising upon the Strength of Flat Wrought Iron.

The pieces were bent into a wave-like form , and afterwards strained towards straightness. The following results show the strain required in each case previous to fracture. They were not generally broken asunder, but simply torn in the bends.

By whom Galvanised.	Size.	Cracking Strain.	REMARKS.
	<i>Inches.</i>	<i>Tons.</i>	
Malins & Rawlinson -	4 × $\frac{1}{4}$	$7\frac{1}{2}$	1 crack.
	"	$7\frac{3}{8}$	2 "
Morewood & Rogers -	4 × $\frac{1}{2}$	$7\frac{1}{8}$	1 crack.
	"	$7\frac{1}{4}$	2 "
Not galvanised - -	4 × $\frac{1}{2}$	$7\frac{1}{2}$	1 crack.
	"	$7\frac{1}{4}$	1 "
	"	$7\frac{3}{4}$	1 "
	"	8	1 "
Malins & Rawlinson -	$3\frac{1}{2}$ × $\frac{3}{8}$	$4\frac{1}{8}$	1 crack.
		$5\frac{3}{8}$	3 "
Morewood & Rogers -	$3\frac{1}{2}$ × $\frac{3}{8}$	$5\frac{1}{2}$	1 crack.
	"	$5\frac{3}{4}$	2 "
Not galvanised - -	$3\frac{1}{2}$ × $\frac{3}{8}$	$4\frac{1}{8}$	1 crack.
	"	$5\frac{3}{8}$	1 "
	"	$5\frac{1}{2}$	2 "
	"	$4\frac{3}{4}$	1 "
Malins & Rawlinson -	3 × $\frac{1}{4}$	$1\frac{1}{2}$	1 crack.
	"	$1\frac{3}{4}$	1 "
Morewood & Rogers -	3 × $\frac{1}{4}$	not cracked -	Drew straight at 5 tons, and broke at $17\frac{3}{8}$ tons.
	"	broke at $8\frac{3}{4}$ tons, 1 crack under edge.	It drew nearly straight.
Not galvanised - -	3 × $\frac{1}{2}$	$1\frac{3}{4}$	1 crack.
	"	$2\frac{7}{8}$	It drew nearly straight.
	"	broke at $12\frac{1}{2}$ tons	2 cracks.
	"	$1\frac{7}{8}$	
Malins & Rawlinson -	$2\frac{1}{2}$ × $\frac{1}{4}$	$4\frac{1}{2}$	Nearly straight.
	"	2	Broke at $5\frac{1}{4}$ tons.
Morewood & Rogers -	$2\frac{1}{2}$ × $\frac{1}{4}$	broke at 14 tons	Drew straight without cracking.
	"	" $14\frac{1}{8}$ "	Ditto - - - ditto.
Not galvanised - -	$2\frac{1}{2}$ × $\frac{1}{4}$	broke at $15\frac{7}{8}$ tons	Drew straight without cracking.
	"	" $5\frac{1}{4}$ "	Drew nearly straight.
	"	" $13\frac{3}{4}$ "	Drew straight.
	"	" $12\frac{1}{2}$ "	Ditto.
Malins & Rawlinson -	2 × $\frac{3}{16}$	cracked at $4\frac{3}{4}$ tons	Drew nearly straight.
	"	" $1\frac{1}{4}$ "	Shell in iron.
Morewood & Rogers -	2 × $\frac{3}{16}$	broke at 6 tons	Drew straight.
	"	" $9\frac{1}{8}$ "	Ditto.
Not galvanised - -	2 × $\frac{3}{16}$	broke at $9\frac{1}{4}$ tons	Drew straight.
	"	" $8\frac{3}{8}$ "	Ditto - - unsound.
	"	" $6\frac{1}{2}$ "	Ditto - - ditto.
	"	" $9\frac{1}{4}$ "	Ditto - - sound and good.

EXPERIMENTS to ascertain the Strength of *Muntz's* Metal Boltstaves.

Number.	Diameter.	Stretch in 42 Inches.	Breaking Strain.	Means.	Reduced to		REMARKS.
					At Fracture.	Elsewhere.	
	<i>Inches.</i>	<i>Inches.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Inches.</i>	<i>Inches.</i>	
1	1 $\frac{1}{8}$	8 $\frac{3}{4}$	23 $\frac{3}{4}$	22.725	1	1 $\frac{1}{16}$	
2	"	6 $\frac{3}{4}$	21 $\frac{1}{4}$		1 F	1 $\frac{1}{16}$ F	
3	"	9	23 $\frac{1}{4}$		1 $\frac{5}{16}$	1 "	
4	"	7 $\frac{1}{8}$	23 $\frac{3}{8}$		1	1 $\frac{1}{16}$	
5	"	4 $\frac{3}{4}$	22		1 F	"	
The above broken a Second Time.							
In 36 Inches.							
1	1 $\frac{1}{16}$	1 $\frac{7}{8}$	23 $\frac{7}{8}$	23.575	1 B	1 F	
2	1 $\frac{1}{16}$ F	2 $\frac{1}{2}$	23 $\frac{5}{8}$		" B	1 F	
3	1 "	1 $\frac{1}{8}$	22 $\frac{3}{4}$		" B	" F	
4	1 $\frac{1}{16}$	1	24 $\frac{3}{8}$		" F	" F	
5	1 $\frac{1}{16}$	2 $\frac{1}{8}$	23 $\frac{1}{4}$		"	"	
In 42 Inches.							
1	1	6 $\frac{3}{8}$	18 $\frac{5}{8}$	18.925	7 $\frac{7}{8}$	7 B	
2	"	7 $\frac{3}{8}$	19		1 $\frac{3}{16}$	"	
3	"	3 $\frac{1}{4}$	18 $\frac{7}{8}$		7 $\frac{7}{8}$	1 $\frac{3}{16}$ B	
4	"	5 $\frac{1}{4}$	19 $\frac{3}{8}$		" B	7 $\frac{7}{8}$ F	
5	"	4 $\frac{3}{8}$	18 $\frac{1}{4}$		"	1 $\frac{5}{16}$ B	
The above broken a Second Time.							
In 36 Inches.							
1	7 $\frac{7}{8}$ B	2 $\frac{1}{4}$	19 $\frac{1}{4}$	19.225	1 $\frac{3}{16}$	7	
2	7 $\frac{7}{8}$	2 $\frac{3}{4}$	19 $\frac{1}{8}$		"	"	
3	1 $\frac{1}{16}$ B	1	19 $\frac{1}{8}$		7 $\frac{7}{8}$	" F	
4	7 $\frac{7}{8}$ F	1 $\frac{1}{4}$	19 $\frac{5}{8}$		"	"	
5	1 $\frac{5}{16}$ B	1 $\frac{1}{4}$	18 $\frac{7}{8}$		"	" F	
In 42 Inches.							
1	7 $\frac{7}{8}$	1 $\frac{5}{8}$	15 $\frac{7}{8}$	16.15	7 B	Not diminished.	
2	"	1 $\frac{7}{8}$	16 $\frac{1}{8}$		1 $\frac{3}{16}$ F	"	
3	"	2 $\frac{1}{4}$	16 $\frac{3}{8}$		"	7 $\frac{7}{8}$	
4	"	4 $\frac{7}{8}$	15 $\frac{5}{8}$		1 $\frac{3}{16}$	1 $\frac{3}{16}$ F	
5	"	2 $\frac{3}{8}$	16 $\frac{3}{8}$		1 $\frac{3}{16}$	7 $\frac{7}{8}$ B	
The above broken a Second Time.							
In 36 Inches.							
1	7 $\frac{7}{8}$	1 $\frac{1}{8}$	15 $\frac{7}{8}$	16.3	7 B	Not diminished.	
2	7 $\frac{7}{8}$	2 $\frac{3}{8}$	16 $\frac{1}{8}$		1 $\frac{3}{16}$ F	7 B	
3	7 $\frac{7}{8}$ B	1 $\frac{1}{4}$	16 $\frac{1}{2}$		"	1 $\frac{3}{16}$ F	
4	1 $\frac{3}{16}$ F	2 $\frac{3}{8}$	15 $\frac{1}{2}$		1 $\frac{3}{16}$ F	"	
5	7 $\frac{7}{8}$	2 $\frac{3}{8}$	17 $\frac{1}{2}$		1 $\frac{3}{16}$ B	" F	
In 42 Inches.							
1	3 $\frac{3}{4}$	8 $\frac{5}{8}$	11 $\frac{3}{8}$	11.375	1 $\frac{2}{16}$	5 $\frac{5}{8}$	
2	"	4 $\frac{3}{4}$	11 $\frac{1}{8}$		9 $\frac{9}{16}$	1 $\frac{1}{16}$	
3	"	8 $\frac{5}{8}$	11 $\frac{3}{8}$		"	" B	
4	"	4	11 $\frac{3}{8}$		1 $\frac{1}{16}$	"	
5	"	3 $\frac{3}{4}$	11 $\frac{1}{2}$		1 $\frac{5}{8}$ F	" F	
The above broken a Second Time.							
In 36 Inches.							
1	5 $\frac{5}{8}$	5 $\frac{5}{8}$	11 $\frac{1}{8}$	11.375	9 $\frac{9}{16}$	5 $\frac{5}{8}$	
2	1 $\frac{1}{16}$	2 $\frac{5}{8}$	11 $\frac{3}{8}$		5 $\frac{5}{8}$	1 $\frac{1}{16}$ B	
3	" B	1 $\frac{1}{8}$	11 $\frac{1}{4}$		9 $\frac{9}{16}$	7 $\frac{7}{8}$ F	
4	"	1 $\frac{1}{2}$	11 $\frac{3}{8}$		1 $\frac{1}{16}$	1 $\frac{1}{16}$ B	
5	" F	3 $\frac{3}{8}$	11 $\frac{1}{2}$		1 $\frac{1}{16}$	1 $\frac{1}{16}$	
Broke in the nip.							

The Strength of *Muntz's* Metal Boltstaves, as now Tested.

Number.	Diameter.	Stretch in 48 Inches.	Breaking Strain.	Mean of 3. 5. 6.	REMARKS.
	<i>Inches.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	
1	1 $\frac{3}{8}$	7	37 $\frac{1}{2}$	- -	Broke in the nip.
2	"	6 $\frac{1}{2}$	36 $\frac{1}{2}$	- -	- ditto.
3	"	7	37 $\frac{1}{4}$	38·208	Broke in the nip.
4	"	11 $\frac{1}{4}$	38		
5	"	12 $\frac{3}{4}$	39 $\frac{1}{4}$		
6	"	11 $\frac{1}{2}$	38 $\frac{1}{8}$		
7	"	6 $\frac{1}{2}$	35 $\frac{3}{4}$	- -	Broke in the nip.
8	"	13 $\frac{1}{4}$	37 $\frac{1}{2}$	- -	- ditto.
9	"	10 $\frac{1}{2}$	37 $\frac{1}{4}$	- -	- ditto.
10	"	11 $\frac{1}{2}$	38	- -	- ditto.

The strength of copper boltstaves, per square inch										<i>Tons.</i>
"	"	iron S. C.		"	"	-	-	-	-	21·15
"	"	Muntz's metal boltstaves, as tested in 1835				-	-	-	-	22·4
"	"	"	"	"	as now tested	-	-	-	-	21·5
"	"	"	"	"		-	-	-	-	25·06

ABSTRACT of the Foregoing.

BREAKING STRAIN, IN TONS.				
Diameter.	First Fracture.	Second Fracture.	Strength per Square Inch.	
			First Fracture.	Second Fracture.
<i>Inches.</i>				
1 $\frac{3}{8}$	38·208	- -	25·74	
1 $\frac{1}{8}$	22·725	23·575	22·86	23·71
1	18·925	19·225	24·09	24·47
$\frac{7}{8}$	16·15	16·3	26·86	27·11
$\frac{3}{4}$	11·375	11·375	25·75	25·75
Means - -	17·294	17·619	$\left\{ \begin{array}{l} \text{Mean of the 5,} \\ 25·06 \\ \text{Mean of the 4,} \\ 24·89 \end{array} \right\}$	25·26

A P P E N D I X.

I N D E X.

Appendix.

	Page.		Page.
Smiths' Tools:		Letter, Rushton & Co.	73
From Woolwich - - - - -	35	Buoys, Dr. Davy - - - - -	76
" Portsmouth - - - - -	36	Quantity of Scrap Iron, &c. delivered to Contractors in Five Years:	
" Devonport - - - - -	37	Portsmouth - - - - -	80
" Chatham - - - - -	39	Devonport - - - - -	80
" Pembroke - - - - -	40	Chatham - - - - -	80
" Mr. Cotsell - - - - -	41	Woolwich - - - - -	80
On Accidents to Chain Cables, &c. in Actual Service:		Sheerness - - - - -	80
From Sir D. Milne - - - - -	44	Pembroke - - - - -	80
" Mr. Walker - - - - -	45	Proof Strain on Anchors, Table of - - -	81
" Mr. Town - - - - -	47	Proof Strain on Chain Cables, Table of -	81
" Mr. Easto - - - - -	47	Prices by the Trinity Board and Government for Chain Cables.	82
" Woolwich - - - - -	48	Size of Hempen and Chain Cables delivered to Ships, &c.	82
" Portsmouth - - - - -	48	Chain Cables, &c. Rejected, after Examination:	
" Devonport - - - - -	49	Portsmouth - - - - -	83
" Chatham - - - - -	50	Woolwich - - - - -	88
" Sheerness - - - - -	50	Testing House, Forms proposed: Portsmouth	84
" Pembroke - - - - -	51	Table of the Average and Utmost Stretch on Chain Cables, &c.: Portsmouth.	84
Answers to the Seven Questions of the Committee:		Experiments on Strength of Chain Cables as compared with Iron, of which it is composed: Woolwich.	85
From Portsmouth - - - - -	53	Number of Chain Cables Tested at Woolwich -	90
" Devonport - - - - -	54	Anchors broken for Experiment: Woolwich -	91
" Chatham - - - - -	56		
" Sheerness - - - - -	57		
Report, Mr. Murray's - - - - -	58		
Price of Galvanizing, Morewood & Co. -	63		
Forms proposed for Smitheries:			
Mr. Fincham - - - - -	63		
Mr. Murray - - - - -	92		

SMITHS' TOOLS.

Sir,

Woolwich Yard, 15 September 1845.

As requested by your letter of the 11th inst., I beg to forward herewith a list of such tools as are considered necessary to be supplied to each smith in charge of a fire, to prevent the necessity of borrowing.

I have, &c.

(signed) *N. Tinmouth,*

Captain Superintendent, on leave.

Captain Brandreth, R.E.,
Chairman of the Committee on Metals.

Sir,

Woolwich Yard, 15 September, 1845.

With reference to your minute of the 12th on the Chairman of the Committee on Metals' letter of the 11th inst., directing us to furnish a list of what we consider the necessary useful tools for each smith to be supplied with who has the charge of a fire:

We have to acquaint you that the necessary useful tools we consider should be supplied to each smith who has the charge of a fire are as follows, viz.:

	Large Fire.	Small Fire.		Large Fire.	Small Fire.
	Number.	Number.		Number.	Number.
Anvil - - - - -	1	1	Square - - - - -	1	1
Hammers, sledge - - -	6	1	Bevel - - - - -	1	1
Hammers, uphand - - -	4	1	Callipers - - - - -	1	1
Hammers, hand - - - -	4	3	Compasses - - - - -	1	1
Hammers, set - - - - -	2	2	Tools, bolt - - - - -	-	6
Hammers, bench - - - -	-	2	Tools, riveting - - - -	-	4
Tongs - - - - -	12 pairs	24 pairs	Slice - - - - -	1	1
Punches - - - - -	12	24	Fire Hook - - - - -	1	1
Pins - - - - -	12	24	Rake - - - - -	1	1
Cant Hooks - - - - -	12	6	Shovels - - - - -	4	1
Chisels, cold - - - - -	4	4	Buckets - - - - -	6	2
Chisels, hot - - - - -	24	12	Swages - - - - -	6 pairs	12 pairs
Chisels, hand - - - - -	-	6	Top and bottom tools -	-	4
Gouges - - - - -	6	6			

We are, &c.

(signed) *O. Lang.**Mr. Read*

(Absent on Leave).

Appendix.

Sir,

Portsmouth Yard, 6 October 1845.

AGREEABLY to your directions by memorandum of the 12th ult., we herewith enclose a list of what we consider the necessary useful tools for each smith to be supplied with who has the charge of a fire, so that the smiths may have the means of performing their work in a workmanlike and satisfactory manner.

Admiral Superintendent.

And remain, &c.
(signed) J. Fincham.
J. Watts.
Wm. Rice.

<i>For a Large Fire.</i>	
Tongs, cross-jaw'd, for holding square iron, from 2 to 4 inches wide - - -	12 pairs
Tongs, cross-jaw'd, for holding flat iron, from 3 to 9 inches wide - - -	36 "
Tongs, hollow bitts, for holding bolt iron, of various sizes - - -	12 "
Tongs, hollow bitts, with a bow for holding headed bolts, large - - -	12 "
Tongs, fore bitts, for holding flat iron of various thickness - - -	12 "
Swedges, called by the workmen "top and bottom tools," with a concave groove for rounding iron from 1½ to 5 inches in diameter.	12 "
Chisels for cutting hot iron - - - - -	30 No.
Chisels for cutting cold iron - - - - -	6 "
Gouges for cutting hot iron, of sizes - - - - -	24 "
Pins for opening holes :	
Round, from 2 to 6 inches - - - - -	24 "
Oval, of sizes - - - - -	24 "
Square - - - - -	24 "
Tongs, ring, for holding links, rings, &c., of sizes - - - - -	24 pairs
Punches :	
Flat, of various degrees of thickness and width, from 1½ inches to 5 inches diameter.	24 No.
Square, from 1 to 2 inches - - - - -	24 "
Round, from 1 to 2 inches - - - - -	24 "
Hammers :	
Hand - - - - -	6 "
Set, square with horizontal faces - - - - -	12 "
Side set, square with oblique faces - - - - -	12 "
Sledge, 22 lb., 16 lb., 11 lb., 7 lb. One of each of these kind of hammers is required by each hammerman at the fire.	
Double-faced convex, 4 lb. - - - - -	2 "
Double-faced, one face flat and the other boller, 11 lb. - - - - -	2 "
Squares, 2 feet by 1 inch, with inches marked on them - - - - -	*2 "
Bevils, iron - - - - -	*1 "
Compasses, large - - - - -	*1 pair
Callipers, large - - - - -	*1 "
<i>For a Small Fire.</i>	
Tongs, cross-jaw'd, for flat iron, from 2 to 5 inches wide - - - - -	12 pairs
Tongs, cross-jaw'd, for square iron, from ¾ths to 2 inches wide - - - - -	10 "
Tongs, hollow bitts, for holding bolt iron, from ¾ths to 2 inches - - - - -	12 "
Tongs, hollow bitts, with a bow for holding headed bolts, of sizes - - - - -	12 "
Tongs, fore bitts, to hold flat iron, from ½th to 1 inch thick - - - - -	8 "
Tongs, ring, for holding links and rings, from ¾ths to 2 inches thick - - - - -	8 "
Swedges, top and bottom, for rounding iron, from ¼ to 3½ inches - - - - -	24 "
Sets, top and bottom, round-edged or chisel-shaped, from ¼ to 1½ inches thick at the edge.	12 "
Chisels in rods, for cutting hot iron - - - - -	24 No.
Chisels in rods, for cutting cold iron - - - - -	6 "
Hammers :	
Hand - - - - -	3 "
Set, square with horizontal face, of sizes - - - - -	3 "
Sideset, with oblique face, of sizes - - - - -	3 "
Punches in rods :	
Flat, for punching holes, from ¾ to 2 inches wide - - - - -	12 "
Square, for punching holes, from ¼ to 2½ inches thick - - - - -	12 "
Round, for punching holes, from ¼ to 1½ inches thick - - - - -	12 "
Gouges in rods, from 1 to 2 inches wide - - - - -	6 "
Top Tools in rods :	
For rounding the insides of eyes, of sizes - - - - -	8 "
To give a small degree of roundness to the outer surface of block binding - - - - -	9 "
Flatters in rods, for smoothing the surface of ironwork - - - - -	4 "

* N.B.—Every fire, both large and small, should be furnished with the last four articles.

For a Small Fire—continued.

Punches, hand :		
Round, from $\frac{1}{8}$ to $\frac{1}{2}$ inch -	- - - - -	6 No.
Flat, for forelock holes, from $\frac{1}{4}$ to $1\frac{1}{8}$ inch -	- - - - -	6 "
Square, of various sizes -	- - - - -	6 "
Chisels, hand, cold, some cross-cut and others square-edged -	- - - - -	12 "
Rosebuds, or countersunks, in rods, from 1 to $2\frac{1}{2}$ inches diameter -	- - - - -	6 "
Bolt tools :		
For heading saucer-headed bolts, from $\frac{3}{8}$ ths to $1\frac{1}{2}$ inch.		12 "
With square holes for heading bolts, from $\frac{3}{8}$ ths to $1\frac{1}{2}$ inch -	- - - - -	12 "
Pins :		
For dressing nuts upon, from $\frac{1}{2}$ to $1\frac{1}{2}$ inch -	- - - - -	9 "
Flat, from $\frac{3}{4}$ to 3 inches wide -	- - - - -	14 "
Round, short, for opening holes from $\frac{1}{2}$ to $2\frac{1}{2}$ inches -	- - - - -	36 "
Square, short, for opening holes from $\frac{1}{2}$ to $2\frac{1}{2}$ inches -	- - - - -	30 "
Dressers, steel, for opening and dressing forelock holes -	- - - - -	16 "
Hammers, sledge, 16 lb., 11 lb.; For each hammerman at the fire one of each.		

Besides these ordinary tools, there are others used in making block bindings of various kinds and sizes, which it is impossible to describe in writing; and indeed many of the above, although well known by our men, and called by the names which we have given them, would not be understood by any but ship smiths, and not by all of them without models or patterns, many of them having been invented within the last 20 years by our men to facilitate or expedite their work; and this leads us to remark, that such is the peculiar nature of our work, that if every man in the shop were furnished with all the tools which have yet been found necessary, in less than 12 months some new tool would be invented to meet some peculiar case, and so on for ever.

(signed) *William Tyler*, Master Smith,
Philip Steer, First Foreman.
John Fincham, Master Shipwright.

Sir,

Devonport Dockyard, 17 September 1845.

IN reply to your Minute of the 12th inst., directing us to furnish, for the information of the Chairman of the Committee on Metals, a list of what we may consider the necessary useful tools for each smith to be supplied with who has the charge of a fire; we beg to state, that from the variety of work required to be performed by the smiths, we are unable to define the exact number of tools for each to be supplied with, as in the event of any extraordinary job being required to be done, it is given to the men employed at the fire where the tools and workmen are best adapted to perform the same; but that you may have a knowledge of what tools the smiths stand charged with, the following is a list thereof, viz. :

	<i>Number.</i>		<i>Number.</i>
Anvils - - - - -	78	Shovels - - - - -	46
Hammers of sorts - - - - -	656	Spring saws - - - - -	8
Beak irons - - - - -	14	Squares - - - - -	84
Chisels and gouges, of sort - - - - -	763	Swages - - - - -	81
Callipers - - - - -	70 pairs	Shears - - - - -	6 pairs
Compasses - - - - -	68	Bolt tools - - - - -	160
Drills, of sorts - - - - -	40	Rounding tools - - - - -	128 pairs
Files, of sorts - - - - -	204	Tongs, of sorts - - - - -	550
Hand Hooks - - - - -	65	Cutters - - - - -	53
Mandrills - - - - -	12	Sets, of sorts - - - - -	30
Punches, of sorts - - - - -	285	Flatters - - - - -	20
Screw plates and taps - - - - -	515	Gravers - - - - -	30

We are, &c.
 (signed) *Wm. Edye.*
W. Spiller.

Admiralty, 3 October 1845.

THE Committee fear they have not been sufficiently clear in their request. They desire to be informed what (in the opinion of the officers) ought to be the number and description of tools each smith in charge of a large and small fire should be supplied with, in order to enable him properly to perform the ordinary current work required of him.

Such accounts have been furnished from the other yards, and I am desired by the Committee to request you will be pleased to direct the officers to endeavour to furnish a similar account.

(signed) *W. W. Brandreth.*

Admiral Superintendent
 Sir Samuel Pym, K. C. B.,
 &c. &c. &c.

Appendix.

Devonport Yard, 4 October 1845.

THE officers are to state their opinion hereon, according to the best judgment they can form.

(signed) *Alex. Lumsdale,*
Admiral Superintendent, Absent on Duty.

Devonport Yard, 8 October 1845.

WE beg to annex the description and number of tools required for the use of smiths employed at one fire of each class at this yard.

(signed) *W. Edye.*
W. Spiller.
W. Ayhward.

	Large, or Anchor Fire.	Middling Fire.	Small Fire.
	Number.	Number.	Number.
Anvils, cast iron - - - - -	2	—	—
Anvils, wrought - - - - -	1	1	1
Bevils - - - - -	1	1	1
Beak irons - - - - -	—	—	1
Chisels, cold - - - - -	4	2	2
Chisels, hot - - - - -	36	20	8
Chisels, hand - - - - -	4	2	2
Cutters - - - - -	—	—	1
Cradles for cranes - - - - -	3	2	1
Callipers - - - - -	2	2	1
Compasses - - - - -	1	1	1
Files, of sorts - - - - -	2	2	4
Gouges - - - - -	6	4	2
Hammers, sledge - - - - -	0	6	2
Hammers, hand - - - - -	4	3	2
Hammers, set - - - - -	10	4	2
Hammers, riveting - - - - -	—	—	1
Hammers, battering - - - - -	4	2	—
Hercules - - - - -	2	—	—
Handspikes - - - - -	4	2	—
Hooks, hand - - - - -	10	4	2
Hooks, fire - - - - -	4	2	1
Levers, wood - - - - -	6	—	—
Punches, common - - - - -	4	2	6
Punches, countersunk - - - - -	—	—	2
Punches, forelock - - - - -	1	1	2
Pins, of sorts - - - - -	20	6	8
Pliers - - - - -	—	—	2 pairs
Reamers - - - - -	2	1	—
Rods, measuring - - - - -	2	1	1
Splices - - - - -	3	3	2
Slices - - - - -	—	—	2
Shovels, triangular - - - - -	6	3	—
Stamps, broad arrow ↑ - - - - -	2	2	2
Squares - - - - -	2	1	1
Swages - - - - -	6	4	6
Screw-plates with taps - - - - -	—	—	1
Scrappers - - - - -	—	—	2
Tools for heading bolts - - - - -	—	—	4
Tools for rivets - - - - -	—	—	4
Tools for rounding - - - - -	—	—	6
Tongs, of sorts - - - - -	8 pairs	6 pairs	10 pairs
Vices, standing - - - - -	1	—	1
Wedges, iron - - - - -	8	4	4
Winches, nut - - - - -	—	—	2
Winches, tap - - - - -	—	—	2

(signed) *W. Edye.*
W. Spiller.
W. Ayhward.

Admiral Superintendent.

Devonport Yard, 8 October 1845.

Referred for the information of the Committee.

Captain Brandreth, R. E.,
&c. &c.

(signed) *Alex. Lumsdale,*
Admiral Superintendent, absent on Duty.

Sir,

Chatham Yard, 20 September 1845.

WITH reference to your directions of the 12th inst., we herewith transmit a list of the necessary useful tools for a double and a single fire.

Captain Superintendent.

We are, &c.
 (signed) *J. S. Laire.*
J. Moore.
Mr. Lang
 (Absent with leave).

<i>Double Fire.</i>	<i>Number.</i>	<i>Single Fire.</i>	<i>Number.</i>
Anvil - - - - -	1	Anvil - - - - -	1
Hammers, sledge - - - - -	4	Hammers, hand - - - - -	2
Hammers, battering - - - - -	4	Hammers, sledge - - - - -	1
Hammers, gang - - - - -	4	Hammers, battering - - - - -	1
Hammers, set - - - - -	6	Hammers, set - - - - -	2
Hammers, small borrow - - - - -	4	Hammers, borrow - - - - -	2
Chisels, hot - - - - -	18	Hammers, bench - - - - -	1
Chisels, cold - - - - -	4	Chisels, hot - - - - -	12
Tongs - - - - -	20 pairs	Chisels, cold - - - - -	6
Top and bottom tools - - - - -	6	Gouges - - - - -	6
Splices - - - - -	6	Punches - - - - -	18
Hoops - - - - -	12	Tongs - - - - -	20 pairs
Flat punches - - - - -	12	Top and bottom tools - - - - -	6 „
Pins, from 1 to 5 inches - - - - -	20	Heading and rivet tools - - - - -	12
Gouges - - - - -	6	Pins, flat, round, and square - - - - -	60
Bevil - - - - -	1	Poker - - - - -	1
Square - - - - -	1	Slice - - - - -	1
Callipers, large - - - - -	1	Bevil - - - - -	1
Callipers, small - - - - -	1	Callipers - - - - -	1
Hearth staff - - - - -	1	Round sets - - - - -	6
Fire hook - - - - -	1	Vice to every third fire - - - - -	1
Slice - - - - -	1	Screw-plate with five holes - - - - -	1
Rising bar - - - - -	1	Flatters - - - - -	4
Chain cradles, large - - - - -	1	Stock and dies to every sixth fire - - - - -	1
Chain cradles, small - - - - -	1		
Hand hooks - - - - -	4		
Round sets - - - - -	6		
Rake - - - - -	1		
Shovel - - - - -	1		

(signed) *J. S. Laire.*
J. Moore.
Mr. Lang
 (On leave).

20 September 1845.

FORWARDED for the information of the Committee, as requested 11th inst.

W. W. Sheriff.

Sir,

Pembroke Yard, 23 September 1845.

In obedience to the directions contained in your minute of the 13th instant, we beg to forward a list of the necessary and useful tools which we are of opinion should be furnished to each smith who has the charge of a fire.

We remain, &c.
(signed) R. Abethell.
J. Pretious.

The Captain Superintendent.

<i>Large Fire.</i>	<i>Number.</i>	<i>Large Fire—continued.</i>	<i>Number.</i>
Stock bar - - - - -	1	Straight-edge, 3 feet in length - - -	1
Plate for ditto - - - - -	1	Squares, large - - - - -	1
Shovels - - - - -	2	Squares, small - - - - -	1
Slice - - - - -	1	Bevil - - - - -	1
Fire hook - - - - -	1	Callipers - - - - -	1
Fire rake - - - - -	1	Compasses - - - - -	1
Point bar - - - - -	1	Files, flat - - - - -	1
Cradles and chains, one large and one small -	2	Files, half round - - - - -	1
Lever and chain - - - - -	1	Bolster - - - - -	1
Hand hooks, of sizes - - - - -	4	Horse - - - - -	1
Porters or bearers, one large, one middling, one small.	3	Water buckets - - - - -	3
Anvil, large - - - - -	1	Rings and wedges for porters, of sizes.	
Anvil with beak, small - - - - -	1		
Anvil bar - - - - -	1		
Saddles for anvil, one round for turning knees and one flat.	2		
Swages for large anvil, top and bottom, from 1 to 3 inches.		<i>Small Fire.</i>	
Fullees, from 1 to 2 inches.		Stock bar - - - - -	1
Flatters, of sizes - - - - -	3	Plate for ditto - - - - -	1
Hammers, sledge, large, 24 lbs. each - -	2	Shovel - - - - -	1
Hammers, sledge, gang, 13 lbs. each - -	4	Slice, large - - - - -	1
Hammers, up hand, 9 lbs. each - - -	4	Slice, small - - - - -	1
Hammers, battering, double faced, one round and one flat, 7 lbs. each.	4	Fire hook - - - - -	1
Hammers, hand, double faced, one round and one flat, 3 lbs. each.	4	Poker - - - - -	1
Hammers, set, one large and one small - -	2	Anvil with beak - - - - -	1
Chisels, hot - - - - -	18	Saddle for ditto - - - - -	1
Chisels, cold - - - - -	4	Cutter for ditto - - - - -	1
Chisels, hand - - - - -	6	Swages, top and bottom, from $\frac{3}{8}$ to $1\frac{1}{2}$ inch.	
Gouges, large - - - - -	1	Top and bottom tools for collar, belaying, and capstan pins, from $\frac{1}{2}$ to $1\frac{1}{4}$ inch.	
Gouges, middling - - - - -	1	Stake for welding ring bolts, from $\frac{3}{4}$ to $1\frac{3}{4}$ inch.	
Gouges, small - - - - -	1	Flatters, middling - - - - -	1
Punches, round and square, from 1 to 3 inches.		Flatters, small - - - - -	1
Punches, hand - - - - -	6	Chisels, hot - - - - -	12
Punches, centre - - - - -	1	Chisels, cold - - - - -	2
Countersink, large - - - - -	1	Chisels, hand - - - - -	6
Countersink, small - - - - -	1	Gouges, middling - - - - -	1
Pins, round and square, from 1 to 3 inches.		Gouges, small - - - - -	1
Pins for the links, from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches.		Punches, square and round, from $\frac{3}{8}$ to $1\frac{1}{2}$ inch.	
Pins, eyes and keys, for binding deadeyes, from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches.		Punches, oval, of sizes, for making hammers.	
Forelock, stamps and dressers, from 1 to $2\frac{1}{2}$ inches.		Punches, hand - - - - -	6
Forelock, large, for tiller holes, two of each -	4	Countersink, large - - - - -	1
Tongs, forebitts, large - - - - -	1	Countersink, small - - - - -	1
Tongs, forebitts, middling - - - - -	1	Pins, round and square, from $\frac{3}{8}$ to $1\frac{1}{2}$ inch.	
Tongs, forebitts, small - - - - -	1	Ring pins, large - - - - -	1
Tongs, bolt, large - - - - -	1	Ring pins, small - - - - -	1
Tongs, bolt, middling - - - - -	1	Eyes, pins and keys, for binding deadeyes, from $\frac{3}{8}$ to $1\frac{1}{2}$ inch.	
Tongs, bolt, small - - - - -	1	Nut mandrills, from $\frac{3}{8}$ to $1\frac{1}{2}$ inch.	
Tongs, bow and hollow bitts, large - - -	1	Forelock, stamps and dressers for bolts, from $\frac{1}{2}$ to $1\frac{1}{2}$ inch.	
Tongs, bow and hollow bitts, middling - -	1	Porters or bearers - - - - -	2
Tongs, bow and hollow bitts, small - - -	1	Wedges and hoops of sizes for ditto.	
Tongs, chisel or ring, large - - - - -	1	Hammers, sledge, 13 lbs. weight - - -	1
Tongs, chisel or ring, middling - - - -	1	Hammers, sledge, 9 lbs. weight - - -	1
Tongs, chisel or ring, small - - - - -	1	Hammers, hand, 3 lbs. weight - - -	1
Broad arrow stamp $\uparrow$ - - - - -	1	Hammers, hand, $2\frac{1}{2}$ lbs. weight - - -	1
Tongs for holding dead-eyes to bind, large -	1	Hammers, with round face and cross peau -	1
Tongs for holding dead-eyes to bind, small -	1	Hammers, set, middling - - - - -	1
Tongs, cross bitts, for holding flat iron, large -	1	Hammers, set, small - - - - -	1
Tongs, cross bitts, for holding flat iron, middling -	1	Hammers, clench - - - - -	1
Tongs, cross bitts, for holding flat iron, small -	1	Bottom and top tools, for making six-sided nuts, of sizes.	
Rammers or monkeys, large - - - - -	1	Toggle pins for hatchbars, three; for stanchions, three.	6
Rammers or monkeys, small - - - - -	1	Flat pins for clasp hoops, of sizes.	
Measuring rod, 6 feet in length - - - -	1	Tongs, forebitts, middling - - - - -	1
		Tongs, forebitts, small - - - - -	1
		Tongs, bolt, middling - - - - -	1
		Tongs, bolt, small - - - - -	1
		Tongs, bow, hollow bitts, middling - -	1

<i>Small Fire—continued.</i>	<i>Number.</i>	<i>Small Fire—continued.</i>	<i>Number.</i>
Tongs, bow, hollow bits, small - - -	1	Nail tools, plain - - - - -	1
Tongs, ring or chisel, middling - - -	1	Rivet tools, countersunk - - - -	1
Tongs, ring or chisel, small - - - -	1	Rivet tools, plain - - - - -	1
Tongs, hoop, middling - - - - -	1	Bolt tools, countersunk and plain, from $\frac{1}{2}$ to $1\frac{3}{4}$ inch square.	1
Tongs, hoop, small - - - - -	1	Bevil - - - - -	1
Tongs, cross bits for flat iron, middling -	1	Callipers - - - - -	1
Tongs, cross bits for flat iron, small - -	1	Compasses - - - - -	1
Tongs for holding dead-eyes to bind, middling	1	Straight-edge - - - - -	1
Tongs for holding thimbles to make, large	1	Measuring rod - - - - -	1
Tongs for holding thimbles to make, middling	1	File, flat - - - - -	1
Tongs for holding thimbles to make, small -	1	File, half-round - - - - -	1
Tongs for making square staples, of sizes.		Water buckets - - - - -	2
Beak iron, with one flat end and one round end	1	Broad arrow stamp ↑ - - - - -	1
Beak iron, droked, for making thimbles -	1	Rivet, set - - - - -	1
Bolster, middling - - - - -	1	Rivet, drawer - - - - -	1
Bolster, small - - - - -	1		
Nail tools, countersunk - - - - -	1		

There are also cranes, hoop, mandrills, square and eight-sided, drill braces and bits, vices and screw gear, necessary for general use; and when the steam engine is fixed, it will be necessary, in order to expedite the work, to have a screwing machine, and also a punching and shearing machine, to be worked by steam.

(signed) *R. Abethell.*
John Smith.

Transmitted 24 September 1845.

(signed) *G. J. Falcon,*
Captain Superintendent.

Captain Brandreth, R. E.
Chairman of Committee.

DEVONPORT.

MR. GEORGE COTSELL'S PROPOSITION.

Gentlemen, 12 November 1845.
AGREEABLY to your directions, I submit for your approbation the accompanying list for smiths' tools:

The success of the plan will depend greatly on having,—

- 1st. A suitable (centrally situated) spot as a depository for the "tools in stock."
- 2nd. In having two, three, or four good smiths (according to the number of hands borne) as tool makers and repairers, to have the charge of the depository, and to see that the tools borrowed are returned, when returned to be repaired before they are replaced in the depository.

By this arrangement a better assortment and description of tools will be obtained available for, and open to, every person having charge of a fire. The stock of tools (under proper care) would form a very respectable feature in the department; the shop will be kept free from lumber, and the whole force of the department (except the tool makers and repairers) will be employed on the works in progress.

The apprentices will be placed in a better position for improving themselves as workmen; by having good and proper tools to resort to, suitable to the work they may have in hand, the expense would be less than at present, as less tools in the aggregate would suffice, and the multiplication of sorts (already superabundant) would be avoided.

Local and other circumstances might render a slight alteration in the list necessary, but such alterations would be found to be unimportant; and believing the objections that will probably be urged against the plan to be equally so,

I have, &c.
(signed) *George Cotsell,*
First Foreman of Smiths.

If ordered to carry out the subjoined arrangement I should proceed thus:

Number all the fires, beginning with the largest; gather up all the tools, supply each fire with the tools in common, first stamping them with the number of the forge; select from the remainder such as were worthy of being kept, and arrange them in the depository to the best of my judgment; this done, make up any deficiency by new ones; after this no difficulty can ensue.

The tools "in common" as well as those "in stock" to be repaired and kept up by the "tool makers."

(signed) *George Cotsell.*

Believing the plan herein recommended (for an arrangement of smith's tools) would prove beneficial to the interest of the service, we approve thereof.

(signed) *R. Pett,*
Master Smith.
A. Truscott,
Second Foreman of Smiths.

MR. GEORGE COTSELL'S PROPOSITION.

A List of Smiths' Tools in Common Use and in Stock.	In Common.		In Stock.		
	To each Small Forge.	To each Large Forge.	Where 60 Men are Employed.	Where 120 Men are Employed.	Where 180 Men are Employed.
	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>
Anvils, small - - - - -	1	-	6	8	10
Anvils, large - - - - -	-	1	6	8	10
Bolsters, of sorts - - - - -	-	-	20	30	40
Bar, stock - - - - -	1	1	—	—	—
Bar, anvil - - - - -	-	1	—	—	—
Bevils, large - - - - -	-	-	4	5	6
Bevils, small - - - - -	-	-	4	5	6
Buckets, single iron-bound - - - - -	1	2	12	18	24
Ballast baskets, single - - - - -	1	1	12	18	24
Brooms, birch, with handles - - - - -	1	1	24	36	48
Braces, straight - - - - -	-	-	2	2	2
Braces, crank - - - - -	-	-	2	2	2
Bits, raming, of sizes - - - - -	-	-	20	20	24
Chisels, cold - - - - -	1	1	50	60	70
Chisels, hot - - - - -	3	3	150	200	250
Chisels, hand (of steel, of sorts) - - - - -	-	-	40	50	60
Cradles, small - - - - -	1	-	2	3	4
Cradles, large - - - - -	-	2	4	5	6
Callipers, small - - - - -	1	-	4	5	6
Callipers, large - - - - -	-	1	4	5	6
Compasses, small - - - - -	1	-	4	5	6
Compasses, large - - - - -	-	1	4	5	6
Cat and rack - - - - -	-	-	2	2	2
Drills, bitt, of sizes - - - - -	-	-	24	30	36
Drill (lever action) with gauge and cutter, for dovetailing chambers in shackles of chain cables, &c. - - - - -	-	-	1 set	1 set	1 set
Dressers, of sorts - - - - -	-	-	100	120	140
Flatteners - - - - -	1	1	12	16	20
Files, of sorts - - - - -	1	1	50	75	100
Gauges, anchor stock, for each size anchor - - - - -	-	-	1 set	1 set	1 set
Gauges, of sorts - - - - -	1	1	20	30	40
Hammers, riveting, $\frac{3}{4}$ to 2 inches each - - - - -	-	-	18	24	36
Hammers, hand, of sorts, 3 lbs. each - - - - -	3	3	12	18	24
Hammers, battering, 4 lbs. each - - - - -	1	3	12	18	24
Hammers, quartering, 7 lbs. each - - - - -	1	3	12	18	24
Hammers, gang, small, 11 lbs. each - - - - -	1	3	12	18	24
Hammers, gang, large, 14 lbs. each - - - - -	-	3	12	18	24
Hammers, big, 21 lbs. each - - - - -	-	3	6	9	12
Hammers, extra, 25 lbs. each - - - - -	-	1	6	9	12
Hammers, extra, 32 lbs. each - - - - -	-	-	2	3	4
Hammers, set, of sorts - - - - -	1	1	50	60	70
Hercules to anchor forges - - - - -	-	One to each forge.	-	-	-
Helves, hammer - - - - -	-	-	36	48	60

A List of Smiths' Tools in Common Use and in Stock.	In Common.		In Stock.		
	To each Small Forge.	To each Large Forge.	Where 60 Men are Employed.	Where 120 Men are Employed.	Where 180 Men are Employed.
	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>	<i>Number.</i>
Helves, shovel - - - - -	-	-	18	24	36
Handles, file - - - - -	1	1	36	48	60
Hooks, fire - - - - -	2	1	—	—	—
Hooks, hand - - - - -	-	2	36	46	56
Horses (wood and iron) of each - - - - -	-	$\left. \begin{matrix} 1 \\ 1 \end{matrix} \right\} 2$	12	18	24
Hoops, faggoting, of sorts - - - - -	-	-	36	46	56
Irons, beak, of sorts, small - - - - -	-	-	5	6	7
Irons, beak, of sorts, large - - - - -	-	-	5	6	7
Levers, wood, of lengths - - - - -	-	-	3	4	5
Mandrills, cast iron - - - - -	-	-	3	4	5
Monkeys and chains - - - - -	-	-	3	4	5
Porters or bearers, of sorts - - - - -	-	-	36	46	56
Pins, of sorts - - - - -	-	-	100	125	150
Punches, of sorts - - - - -	-	-	100	125	150
Rammers or dollies - - - - -	-	-	3	4	5
Rods, hazel, chisel, &c., annually - - - - -	-	-	2,000	3,000	4,000
Rods, measuring - - - - -	-	2	4	5	6
Saws, hand, iron-bound - - - - -	-	-	2	2	2
Saws, hand, wood handle - - - - -	-	-	1	1	1
Saws, hand, cross-cut - - - - -	-	-	1	1	1
Screw-plates, with taps - - - - -	-	-	2	2	2
Squares, iron, marked, 2 feet × 1 foot - - - - -	1	1	4	6	8
Squares, iron, marked, 3 feet and 1 foot 6 inches - - - - -	-	-	3	4	5
Spanner, improved - - - - -	-	-	1	1	1
Straight-edges, of lengths - - - - -	-	-	4	5	6
Shovels - - - - -	1	3	12	18	24
Slices, small - - - - -	1	—	—	—	—
Slices, large - - - - -	-	2	—	—	—
Swages, top - - - - -	-	-	60	70	80
Swages, bottom - - - - -	-	-	60	70	80
Saddles, of sorts - - - - -	-	-	36	46	56
Spikes, hand, wood - - - - -	-	2	18	24	30
Stamps, broad arrow - - - - -	1	1	20	30	40
Stamps, figure, single, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0 - - - - -	-	-	2 of each.		40
Stamps, letters, single, A, B, C, D, E, L, G, Q, M, S. - - - - -	-	-	2 of each.		40
Stamps, initial, two letters - - - - -	1	1	1 set	1 set	1 set
Tongs, of sorts, pairs - - - - -	6	6	250	300	350
Templets, of sorts - - - - -	-	-	36	46	56
Tools, rivet and bolt - - - - -	-	-	36	46	56
Tackles and falls, with blocks - - - - -	-	-	3	4	5
Vices, bench, small - - - - -	-	-	6	8	10
Vices, bench, large - - - - -	-	-	6	8	10
Vices, hand - - - - -	-	-	2	3	4
Wedges, iron - - - - -	-	-	40	50	60
*Sundries - - - - -	—	—	—	—	—

* This item is added to enable the foreman or master smith to introduce any tool which the above list does not provide, and which the progress of works may require.

(signed) *George Cotsell,*
First Foreman.

Appendix.

ACCIDENTS to ANCHORS, CHAIN CABLES, and other ARTICLES of IRONWORK,
in ACTUAL SERVICE.

Sir *David Milne's* Letter to Sir *George Cockburn*, "On Accidents in Ironworks, &c.,"
Memorandum, 21 July 1845.

Admiralty House, Devonport,
12 February 1845.

My dear Sir George,

I HAVE to thank you for your obliging reply to my observations about the ironwork in our dockyards. I was afraid you might have thought I was meddling with things I had nothing to do with. I am thankful, however, that you have given it your attention, and I assure you my every-day's observations confirms me in the opinion, that attention is required in that department in the dockyards.

The following occurrences have happened during the last 12 months, but many are daily occurring, although no notice is taken of them. Numerous articles are returned into the dockyards, and others demanded in lieu, without any remarks as to the cause. I send you a paper "On the Manufacture of Iron."

On observing the forging of a large anchor at this dockyard, and being convinced it was not done in a proper manner, I sent the publication to the master blacksmith, but his opinion was "that science had nothing to do with it"; his letter is in the book.

Complaints are constantly made of bolts, hooks, and bars giving way by breaking short; one of the "Albion's" futtoch shrouds snap on setting up the main topmast rigging, and the leading block of the preventer main brace, the bolt snapped, and just missed killing a man when she was going out of the Sound.

The "Hydra" steamer parted her chain cable in the Sound in moderate weather, about a fathom from the anchor; the link was perfectly crystallised, and broke into pieces by the stroke of a light maul. I sent a piece of the link to the Admiralty, but I had no reply; in short, the defects principally arise from the bad manufacture of the iron, and not being afterwards annealed. The "Emerald" tender on coming here a few days ago lost her anchor by the shackle-bolt breaking at the ring of the anchor; and by the stores demanded and given "in lieu," without any report of the cause, it is not known where the error lies.

Many years ago, when I was walking the rounds of Portsmouth Dockyard with Sir George Grey, a contract-built frigate had just arrived; all her chain-plates had been carried away, and were laying in the blacksmiths' shop. The blacksmiths told Sir George Gray "it was for want of annealing," and broke them inch by inch on the anvil; it was crystallised. On our return an hour afterwards, he showed the same iron annealed, when it would not be broken in any way. It would take a volume to describe what is constantly occurring from the defects of the iron.

In the "Caledonia" the top tackle bolts in the cap have broken short in swaying up the topmasts three different times; and in the Cove of Cork the "Iris" and "Apollo" each broke a top tackle bolt in the cap on the same day; and a great number of the gun-tackle hooks and other ironwork in the "Caledonia" have given way.

Chain cable of "Larne" parted at Cove lately. As for the "steamers" they are generally badly fitted. The "Dee," on coming from the eastward, her cranks became so hot they were obliged constantly to pour sea water on them to keep them cool; on her arrival it was found the brasses had been put on the wrong way, although marked.

We had much trouble with the "Virago," and after several trips outside the breakwater without remedying them, she sailed for Falmouth, and on to the Mediterranean, not quite to rights.

On the "Penelope's" arrival in the Sound, on her way to the westward, in consequence of the wood of the paddle-boxes having ignited and burnt from the friction of the shafts of the wheels, owing to the machinery not having been properly fitted, that vessel was obliged to put into the Sound, and on her return home the defect in the hotwell has given much trouble, the former one having been improperly cast; and in general, all the defect is owing to neglect or improper manufacturing the materials, or not annealing the iron. For when the breakage takes place it is crystallised, and breaks like glass. I have seen the old hotwell, and have great doubts whether a new one of the same materials will last long, and it cannot be replaced abroad.

I have no doubt that Sir Francis Collier's information from the dockyard is quite correct, but there is an error or neglect somewhere. What I have stated are facts as regards the iron manufactured for the Navy, whether by contract or in the dockyards; it is an evil which ought to be remedied, when so much depends for the safety of Her Majesty's ships and the lives of our seamen.

These are the motives which induced me to venture to trouble you on the subject, and placed where I am I thought it my duty to give my opinion to that quarter where I was sure it would call attention.

I have again to thank you for your ready notice of what I was a little anxious might be thought out of my sphere of duty.

"Penelope" goes outside the breakwater on Thursday, that Captain Jones may satisfy himself that the machinery is acting right.

Admiral the Right Honourable
Sir George Cockburn, G.C.B., &c. &c.

Believe me, &c.
(signed) *David Milne.*

LETTER from Mr. W. Walker to Mr. Jh. Owen.

Appendix.

My dear Owen,

Bovisand, 10 August 1845.

I HAVE received your letter, and readily give you the little information I possess about the "breaking of anchors, chain cables, and other articles of iron work in actual use."

When in the dockyard I paid considerable attention to the breakage of anchors, and I will mention two or three glaring instances of the inefficiency of large anchors. In February 1833, the "Spartiate," 78 guns, broke three out of the four anchors with which she was supplied; they were returned to Plymouth Yard, and were as brittle as glass, they were anchors that had been shortened in the shank. In 1832 the "Donegal" had an anchor of this kind, which she broke; and I recollect that the "Pembroke" broke an anchor in Plymouth Sound whilst in the act of mooring, and she also broke two other bower anchors at Gibraltar, all "short as a carrot," whilst in the act of mooring in Plymouth Sound, and in letting go the last anchor it touched one of her lower deck ports that had not been lowered, and its arm was seen (by the officers of another ship) to drop off; they reported to the "Pembroke" what they saw, and the anchor was hove up minus the arm.

I took the "Renown" (old) from Plymouth to Deptford, and had only occasion to use a bower anchor once. On landing this anchor in Woolwich Yard the shipwrights unstocked it on the pavement, and when they knocked out one of the battens that had steadied the anchor in its proper position (after unstocking it), the anchor fell into its horizontal position, and one of its arms dropped off. All these anchors, and many others, were certainly not better than anchors of cast iron; and I recollect drawing the admiral's attention to the necessity of annealing anchors after they were made at the smithery, and I rather think a little more attention is now paid to this subject than formerly. I obtained a list of 32 anchors that had been returned to Plymouth and broken in this way in four years, and I think we had some discussion on this very subject at one of your lectures at the Athenæum.

The anchor either is or should be made of the same kind of metal as the chain cable, and yet we find that a good chain cable will break the anchor, having or presenting a fracture containing at least ten times the metal in a section of the chain.

The fact is, that the large anchor, manufactured by small hammers, has to be put so often into the fire and heated to so high a temperature, that the metal is often brought back to a state resembling cast iron. It is heated to near the point of fusion, and then its surface is hand hammered, cooled, and hardened; so that the internal part of the metal is still at a high temperature; the particles are, as it were, imprisoned, and prevented from assuming their proper place in cooling.

Iron diminishes in bulk when it passes into the fluid state, and expands again in cooling. You must recollect that one of our workmen had been tempering a large piece of metal in the engine house; it had been heated to a high temperature and cooled suddenly; after lying an hour or so on one of the benches it went off like a rocket (by division) in the middle. I examined the fractured parts, and found a circular ring round the circumference of the fracture, of a totally different kind to the particles in the central part; the central particles had been imprisoned, and, in cooling, their expansive force tore asunder the external ring.

My opinion with regard to articles of iron that require to be of great strength and tenacity, articles like anchors or cables that should rather bend than break, rather elongate than separate, that they should be thoroughly annealed after the last process of manufacture, that a fire should be kindled around an anchor, and its temperature raised to a dark red heat, and then the fire be allowed to go out, and thus ensure a tough and not a brittle anchor. Large anchors, too, should be made with large hammers.

With regard to chain cables there is really not so much risk of their breakage.

The process of making a chain cable, when each link is put into the fire and brought to the requisite heat, ensures a certain amount of annealing; the chain cable undergoes a test at the manufactory, and workmen pay for bad workmanship; the cable is again tested on entering the arsenal; anchors should also undergo a test,—

1st. By tension in the direction of the shank; the strength of its chain cable to ensure a sufficient strength in the arms.

2nd. By being "let go" from a given height, so as to fall on hard ground (like what takes place in practice), and thus ensures the malleability of the metal, and to guard against the cast-iron brittleness which I have referred to.

I need not say a word about the proper annealing of other articles of a ship's iron, such as deck stoppers, hooks, chain plates, &c. I think it of vast importance that the iron for building iron vessels should be of a proper temper and tenacity.

I think the Admiralty have very judiciously selected and appointed the Committee. You are not likely to get very lucid information from our smiths, who, however clever as workmen, are generally speaking not well educated, and are incapable of scientific investigation. You, however, want facts, but smiths never assign a good reason for anchors breaking; one opinion was that solidity constitutes a good anchor, and all vacuities or imperfect junction in the metal constitutes bad anchors. On this principle a cast-iron anchor should be good. When anchors were returned to the yard as broken, and a report

Appendix.

made, the master smith always regarded the workmanship as good, if the fracture showed solidity.

It seems to me that as iron (like water at 39°) assumes the condition of maximum density, when at or near the point of fusion, that every possible care should be taken to thoroughly heat, and again slowly cool, all large things made of iron, and that even after this has been done, and the article submitted to much percussion, a second annealing may be desirable.

If I can be of any service to you here in obtaining information, pray command me.

Believe me, &c.
(signed) *William Walker.*

A LIST of BOWER ANCHORS that had been broken whilst in use, and Parts thereof returned to Plymouth Yard.

Time When.	From what Ship Returned.	Number of Anchors.	REMARKS.
		<i>Number.</i>	
Sept. 1832	- Donegal, 78 guns - - -	1	Part of shank.
" "	- Asia, 84 guns - - -	1	ditto.
" "	- Jupiter, troop ship - - -	1	ditto.
Query -	- Druid, 46 guns - - -	1	ditto.
Jan. 1835	- Nimrod, sloop - - -	1	ditto.
Feb. "	- Reynard, sloop - - -	1	ditto.
Lost 1833	- Spartiate, 78 guns - - -	1	ditto.
May "	- From Falmouth - - -	1	ditto.
" "	- Alban, steam vessel - - -	1	ditto.
Nov. "	- Fair Rosamond - - -	1	ditto.
Jan. 1834	- Saracen, brig - - -	1	ditto.
May "	- From Falmouth department - - -	2	ditto.
Oct. 1835	- Fly, 18 guns - - -	1	ditto.
Feb. 1833	- Spartiate, 78 guns - - -	2	These anchors had been shortened in the shank.
Aug. 1836	- Sheldrake, packet - - -	1	
Sept. "	- Royalist, packet - - -	1	
Aug. "	- Pembroke, 74 guns - - -	1	Broke in letting go and touching the lower deck port.
June 1837	- Pembroke, 74 guns - - -	2	Broke at Gibraltar.
Nov. 1836	- Phoenix, steam vessel - - -	1	Part of shank.
May 1838	- Portland, 52 guns - - -	1	Apart only.
" "	- Princess Charlotte - - -	1	ditto.
Jan. 1837	- Swift, packet - - -	1	ditto.
" "	- Leveret, packet - - -	1	ditto.
" "	- Forester, 10 guns - - -	1	ditto.
" "	- From Falmouth - - -	3	ditto.
Feb. "	- Delight, packet - - -	1	ditto.
Jan. 1837	- Goldfinch - - -	1	ditto.
Jan. 1838	- Ranger, packet - - -	1	ditto.

The above list of broken anchors was taken by me from a book kept by a man who looks after the anchors in Plymouth Yard (Fry).

When a ship's anchor breaks in use, the part only that remains shackled to the cable is recovered by the ship; viz., the shank.

My object in getting the list was to draw attention to the breaking of the anchors, and not the bending of them; to the cast iron-like property they had acquired in the making, and the evident want of annealing which they should have undergone.

This want of proper annealing of articles of iron after they are made, is I presume the main cause of so many things breaking short off; I saw two instances of this kind very recently; one of the 80-gun ships ("Canopus," I think) was lying in the Sound, riding by one of "Blake's Stoppers" in smooth water and very little wind, the thickest part of the iron broke like so much glass; the "Calliope" has iron fish davits fitted, one of them broke short the moment it was used.

Chains do not break so frequently as might be expected on comparing them with other articles made of iron, but chains sometimes break apparently without sufficient cause. A chain that had been in use on the breakwater for some time on one of the cranes, had lifted many large stones, but broke suddenly and unexpectedly with a middling sized stone suspended to it, whereby the foreman received serious injury. The species of percussion to which these crane chains are subjected by the jerking of the stones may have deranged the particles of iron. Would not a re-annealing of the chain set all to rights again, especially if the iron was heated by wood or charcoal? I have found that if a piece of steel be divided into two parts, and one part be drawn out in a charcoal fire, the capacities

capacities of the two pieces for magnetism is widely different, the part manufactured from the charcoal being a very superior magnet. A wood fire may drive off deleterious substances from the metal, which a coal fire may even impart to iron, but this is merely conjecture on my part.

It is, however, a fact that wood fires, or charcoal fires, improve iron, and even convert it into steel, a very superior metal to iron. There is a little Turkish village on "Cape Baba," near Tenedos, where the celebrated yataghans are forged by the villagers in their little charcoal fires. I have been there; the goodness of the weapon I ascribe to the slow process of the workmen, and the art he possesses of tempering.

(signed) *William Walker.*

Mr. Town to Mr. Owen.

Royal Clarence Victualling Yard,
4 August 1845.

Dear Sir,

WHEN chain cables were first introduced into the service, I had for a considerable time some experience in bringing them into general use, and for the first few years after they became permanently adopted and brought into use with the old patent long-shanked anchors, great caution was necessary in letting go the anchor on hard ground; in deep water, it often occurred that on the anchor coming to the ground with increased velocity, caused by the additional weight of chain, the anchor broke in the shank, sometimes about a foot or eighteen inches from the stock; at other times about the same distance from the flukes. But since the short-shanked anchors have been introduced, it has been to a great degree, if not entirely, obviated.

While I was on the St. Helena and Cape of Good Hope station, the breaking of anchors was a frequent occurrence, not only with Her Majesty's, but also with the Honourable East India Company, and other merchant ships.

I never knew of a chain cable giving way but in one instance, which I attribute to neglect, as it was then the custom to moor with one chain and one hemp cable, and at times with two chains; and when it became necessary to clear hawse, the people would, if not looked after, strike and knock out the cross bar (stay pin) for the more convenient purpose of making a rope stopper-fast to hang the chain; which, of course, considerably reduced the strength of the chain, and I have no doubt is often the principal cause of its giving way.

I am, &c.
(signed) *John Town.*

Mr. Easto to Captain Brandreth.

Sir,

Sheerness, 26 August 1845.

WITH reference to our recent conversation respecting the cause of chain cable breaking, I am of opinion that in many instances the cables are broken by the ship riding with too short a scope, as also being too light, to which add the sudden jerking of a heavy sea.

In putting the chain cables together, I have occasionally found that the bolts of the joining shackles have in some instances been too large to admit of their joining close home to the crown of the link, and thereby causing such undue pressure on the sides of the links as in some cases to burst the link; this occurred to the "Fantome's" cable at the little Nore, on the 13th February 1845, and by permission of the captain superintendent, I have forwarded to Woolwich the defective link thereof for inspection.

I have also to observe that at Gibraltar, in the "Jupiter," in February 1838, the "Talavera" and "Russell" both parted their chain cables, which I consider might arise from the circumstance of the ships being moored too tight, and at which time the "Bellerophon" broke her anchor, I think not improbably from the same cause. But this I by no means state as bringing any charge against the officers of those ships, only as cases in point; fuller information thereon, I presume, would be obtained by a reference to the ships' logs.

I would likewise observe that the swivels in chain cables sometimes become so corroded and stiff as not to traverse freely, and consequently the cable does not have fair play; this I think would be mainly obviated by more frequently examining and cleaning the cables in use, say every three or four months, and well greasing the swivels.

These remarks and suggestions I submit.

I remain, &c.
(signed) *Richmond Easto.*

Appendix.

Admiralty, Somerset House,
1 August 1845.

Sir,

WITH reference to the order of the Lords Commissioners of the Admiralty, dated 14th ultimo, on the subject of affording information to the Committee on Metals, I have to request you will be pleased to call upon the officers for answers to the following queries, to be given as fully and as much in detail as they are able.

(The officers' report is given in *Italics*.)

(signed) *N. Timmouth O'Lary.*

1st. What are the circumstances under which chain cables or anchors have been found to break in actual service?

No means of judging.

2nd. What kind of articles of iron work have been found to break in actual service on board ships?

Actual service in a ship can alone determine this question.

The opinion of the master smith is requested as to what he may consider a proper remedy for the latter class of accidents?

The master smith has no remedy to offer, but that the iron be good, and the workmanship well performed.

(signed) *N. Timmouth O'Lary.*

The Commodore Superintendent,
Woolwich.

I have, &c.
(signed) *W. Brandreth.*

Sir,

Portsmouth Yard, 3 September 1845.

WITH reference to your memorandum of the 4th ultimo directing us to give answers to the following queries, fully and in detail, for the information of the Committee on Metals, we beg to submit the following facts and suggestions arising out of the consideration of the said questions, taking them in the order proposed, viz.:

REPORT.

1st. What are the circumstances under which chain cables or anchors have been found to break in actual service?

Chain cables have been found to break by bringing a ship up suddenly with a short scope; they have also been known to break in running round the fortifications (iron) of the bitts when the edges have not been sufficiently rounded, thereby causing the strain on the link in passing the sharp corners to bear the strain in an unnatural way.

The anchors have sometimes broken, since the introduction of chain cables, in heaving too short in weighing, and sometimes in letting go when the anchor falls on hard ground, but the improvements in the anchors by being shortened and made stronger in their shanks have partly overcome the weakness.

2nd. What kind of articles of ironwork have been found to break in actual service on board ships?

Where eye bolts (top tackle and other) have broken, it has generally been occasioned by imperfect welding of, or flaws in, the iron.

It is the practice in this yard to cut top tackle eye-bolts out of solid iron to avoid the risk of imperfect welding. Hooks most frequently break from not being properly made at the parts requiring the greatest strength, as well as by officers occasionally subjecting them to an undue strain.

In conclusion, it may be worthy of remark, that in every line-of-battle ship there are upwards of 1,000 ring and eye-bolts, and when it is considered how rarely any of these are found to have been broken during service at sea, it may be taken as satisfactory evidence of good workmanship.

Ring and eye-bolts supplied by contract are, undoubtedly, inferior both in quality of the iron and in strength to those manufactured at the dockyards; their inefficiency is often manifested in the act of driving when they frequently break in the eye, and for this reason we never use them in important situations, viz., as for gun tackles, breechings, and such purposes.

The report of the master smith is herewith appended in accordance with your memorandum.

We are, &c.
(signed) *Wm. Purdo.*
Jno. Fincham.

Smithery, Portsmouth Yard,
9 August 1845.

Appendix.

Sir,

IN obedience to your directions of the 5th instant, we proceed to answer the following queries, viz.:

- 1st. What are the circumstances under which chain cables or anchors have been found to break in actual service?
- 2nd. What kind of articles of iron work have been found to break in actual service on board ships?

CHAIN CABLES.

We must at the outset premise that from the very nature of things our answers to the first query must be for the most part conjectural. The following, however, we believe to be some of the circumstances under which they break:

In bringing the ship up under a heavy pressure of wind and tide, and not letting out enough of her cable, as was once the case with Her Majesty's ship "Queen," at Spithead; riding in heavy weather; weighing the anchor after riding some weeks, the ground being very hard to break.

We have generally found that they break between the bitts and the water; we believe that sometimes the compressor injures them by galling or crippling the links.

We believe the chief defects in a cable to result from some of its links being made of brittle iron, or, the iron being good, the link may be injured in turning, or it may be badly welded in consequence of sulphur or other pernicious matter being in the fire, or, which is often the case, its good qualities may be effectually destroyed by its being overheated in welding.

With reference to anchors, we beg to state that since the improvements that have been introduced into their form and the method of their manufacture, we very rarely hear of their breaking, and we believe that when we do, it is in consequence of their coming in contact with, or falling amongst, rocks or other hard substances when let go, or in breaking ground when the ship is brought what is termed "short a-peak." This, however, since diminishing the palms and shortening the shank and arms, and keeping the entire anchor still its full weight, seldom occurs.

With reference to those of the old make now in store, we would recommend their being tested prior to their being issued to ships, that being the best way to ascertain their strength and soundness, especially those made by contract, they having never been so minutely proved as that process would do.

In answer to the second query, namely, "What kind of articles of iron-work have been found to break in actual service on board ships?"

We observe they are chiefly top tackle and P eye-bolts to caps, hooks, tackle, and bindings to puttock dead-eyes. We are happy, however, to say that even those break rarely, and we think that when they do, it is caused by their being overstrained on board. It would be too much to expect no casualties to occur, seeing that so many workmen are employed in the manufacture of iron work for ships; some more talented than others, and, especially, as one bad heat, often caused by a bad coal getting into the fire, will greatly injure the whole article, and yet it shall appear to be very good and sound.

In conclusion, we beg to observe that as the strength of smith's work is very much affected by the coals used in its manufacture, it is of great importance that these should be of the best quality, and of all those with which we are acquainted, we know of none so good for the smithery as Pontop, both as it regards their strength and purity.

We are, &c.
(signed) Wm. Tyler, Master Smith.
Php. Steer, First Foreman.

Sir,

Devonport Dockyard, 7 August 1845.

With reference to the letter of the 1st instant from the Chairman of the Committee on Metals, and your minute of the 3rd instant, directing us to furnish replies to the following queries, viz.:

- 1st. What are the circumstances under which chain cables or anchors have been found to break in actual service?

We beg leave to state that we are of opinion chain cables have been broken by sudden strains being brought on them by the compressors by turns round the cross pieces to the mooring bitts, and (when running out) by being too suddenly brought up and nipped short on the hawse pipes or bitts; the swivels, too, being about twice the length of the link of the cable, are more subjected to severe strains than the links from the same causes, and have frequently been found broken, and are generally set fast in the swivel part from corrosion. Cables are also likely to be broken when a ship is hove short, and in breaking the anchor out of strong ground. Anchors have been broken in weighing from stiff

Appendix.

stiff ground, and also when falling on rocky ground, and by heavy strains in gales of wind, but we do not know of anchors that have been made from the last table of dimensions and form, to break.

2nd. What kind of articles of iron work have been found to break in actual service on board ship? With the master smith's opinion.

We cannot specify any particular articles of iron work that have been found to break more than another, and, in our opinion, they only require good iron and careful workmanship, the proportions being well regulated from experience. The master smith is of the same opinion.

We are, &c.
(signed) *Alex. Lumsdale.*
W. Edye.

Sir,

Chatham Yard, 21 August 1845.

IN obedience to your minute of the 2nd instant to reply to the queries of the Committee on Metals, viz.:

1st. Under what circumstances chain cables or anchors have been found to break in actual service?

We beg to state that we believe one occasion of the breaking of anchors or cables is, when from circumstances a ship has been brought up violently before the wind on a lee-tide; the anchor falling heavily on hard ground; violent storms, &c., are the causes.

Since the introduction of short shanked anchors we have not seen one broken. Previously, when long shanked anchors were in use with chain cables, the horizontal action occasioned by the weight of the chain caused the large palms then in use to bite deep, and the long leverage, when hove short and breaking ground, to sometimes strain and break them, as well as from being longer they were also slighter.

2nd. What kind of articles of iron work have been found to break in actual service on board ships?

There have been but few articles returned here which have been found broken in actual service: among them a ring bolt, necklace for topmast, and a stern davit.

The ring bolt (made by contract) gave way in the weld, from indifferent workmanship. The necklace had been slightly made for neatness, and the davit not strong enough for the boat attached to it. Hooks of blocks are also sometimes found to break, arising partly from defective strength, and, sometimes, from not being well inserted into the eye-bolts to which they may be attached, by which the strain is brought unfairly on the point of the hook.

3rd. And the opinion of the master smith as to what he may consider a proper remedy for the latter class of accidents?

The remedies proposed by the master smith are, that in cases when danger may arise from inefficiency of workmanship, the articles be made in the dockyard and not by contract, and that, in the case of ring and eye-bolts, on which much depends, they be made from remanufactured iron to ensure the best materials.

We remain, &c.
(signed) *F. W. R. Sadler.*
J. S. Laire.

Sir,

Sheerness Yard, 8 August 1845.

ADVERTING to the Director of Works' letter of the 1st, and your minute of the 3rd instant, calling upon the officers, with reference to the Admiralty Order of the 14th ultimo, on the subject of affording information to the Committee on Metals for answers to the following queries, to be given as fully and as much in detail as they are able, we beg to report as follows, viz.:

1st. What are the circumstances under which chain cables or anchors have been found to break in actual service?

We cannot state under what circumstances cables and anchors are broken in actual service, as the parts of the chain cables broken are generally lost, but there are three anchors now in this yard which are broken in the shank, one of 72 cwt. returned from the "Blenheim," and two of 85 cwt. returned from the "Powerful," and "Ganges"; the one from the latter ship was broken in letting go in Sheerness Harbour.

2nd. What kind of articles of iron work have been found to break in actual service on board ship?

We are not aware that any kind of articles of iron work have been found to break in actual service, excepting that of tackle hooks, which have been found broken on being returned

returned from ships paid off, which indicates they were broken in actual service, from which circumstance we consider they were too slight.

3rd. The opinion of the master smith as to what he may consider a proper remedy for the latter class of accidents?

The master smith's report is herewith transmitted.

We remain, &c.
(signed) *Jno. Gaze*, Master Attendant.
J. Atkins, Master Shipwright.
H. Bois, Assistant Master Shipwright.

Sir,

Sheerness Yard, 7 August 1845.

IN obedience to the Director of Works' letter of the 1st instant, and your memorandum of the 4th, relative to the breaking of chain cables and anchors, I beg to state that, when chain cables break in use, the broken part is generally lost, that we have no means of ascertaining the cause. As chain cables are made of the best iron, and every cable properly tested before put into use, I cannot think it is from bad workmanship, but from a very extraordinary strain.

There are three broken anchors in this yard, one of 85 cwt. returned from the "Powerful," one of 85 cwt. returned from the "Ganges," and one of 72 cwt. returned from the "Blenheim." The "Ganges" anchor was broke in the harbour, it appears, by letting go, as it would not bring up the ship; an old plan anchor. I consider it almost impossible to make a round shank perfectly solid. I have not known an instance of a large anchor breaking made on Mr. Perrings' or the Admiralty plan, with all flat iron.

When I had the charge of the smiths' work in Her Majesty's Yard at Pembroke, I proposed to the late Mr. Hawkes, master shipwright there, to make the ring and eye-bolts for ports with solid eyes. He consented to make the ring-bolts on that plan, but thought the eye-bolts would take too much time. I still think it would be a great improvement, and from time to time there are a great many tackle hooks broken, which I consider ought to be increased in size.

I remain, &c.
(signed) *Rd. Vinning*, Master Smith.

Sir,

Pembroke Yard, 12 August 1845.

IN obedience to your minute of the 4th instant, directing us to return answers to the following queries, to be given as fully and as much in detail as we are able:

- 1st. What are the circumstances under which chain cables or anchors have been found to break in actual service?
- 2nd. What kind of articles of iron work have been found to break in actual service on board ship? And the opinion of the master smith as to what he may consider a proper remedy for the latter class of accidents, to be sub-joined.

We beg to acquaint you that we have never had an opportunity of witnessing the breaking of chain cables or anchors in actual use, and are therefore unable, of our own knowledge, to state the circumstances under which they have broken, but we are of opinion that the breaking of chain cables may partly be occasioned from their want of elasticity, which exposes them to sudden jerks when a ship is riding by them in a strong gale of wind with a heavy sea.

To lessen this danger an ingenious method has been devised, the principle of which is to attach the inboard end of the cable through the medium of the capstan to the interior of a strong iron vessel containing compressed air, thus forming for it an elastic termination.

Whether this plan would be conveniently practicable or not we cannot determine, but it seems worthy of consideration.

An account of it is, we believe, to be found in the records of Woolwich Yard of about the year 1840.

The breaking of anchors may take place, we consider, under the following circumstances:

- 1st. By sudden jerks in riding.
- 2nd. By weighing in hard or rocky ground.
- 3rd. By letting go in the usual manner, should the anchor fall horizontally so as to strike the ground with the fluke.
- 4th. By a considerable weight of chain running out and falling on the shank of the anchor.

Appendix.

The first of these dangers would be lessened, if not obviated, by the elastic apparatus before mentioned. The second is perhaps unavoidable; the third and fourth may be avoided, it is presumed, by careful seamanship.

We beg to say, however, that we make these observations with some diffidence, the subject being quite a nautical one.

The articles of iron work which have been found to break in actual service on board ship do not seem to be very numerous.

We beg to transmit the master smith's enumeration, to which we have nothing to add, together with his opinion as to what he considers a proper remedy for this class of accidents, and likewise some practical observations of his on the manufacture of chain cables and anchors.

We remain, &c.
(signed) *R. Abethell.*
J. Pretious.

Pembroke Yard, 12 August 1845.

Transmitted for the information of the Committee on Metals, with reference to Captain Brandreth's letter of the 1st instant.

(signed) *G. J. Falcon,*
Captain Superintendent.

Sir,

Pembroke Yard, 7 August 1845.

IN answer to the first of your proposed queries as to the circumstances under which chain cables and anchors have been found to break, I beg leave to say that I consider it to be in consequence of many of them being made of inferior iron, and others by inferior workmen, and also from their not being made in proportion. It is therefore highly necessary, in reference to chain cables, that strict attention be paid to uniformity in the links, and likewise to see that the scarph ends are properly welded, as defective scarphs are equal to being cut with a chisel.

With regard to anchors, I believe those now made in Her Majesty's Dockyards are the best and the strongest we have ever had in the service, if proper attention be paid to the quality of the iron, and also to the workmen, and care be taken that the anchor be annealed in every part before put out of hand.

But still I think that a better plan might be adopted in bringing them together, as in the event of their falling into the hands of inferior workmen we shall still have bad anchors.

With regard to the second question, viz.: What kind of articles of iron work have been found to break in actual service on board ships? I would include the following, viz.:

Hammock stanchions.
Ring and eye-bolts.
Cap. P eye-bolts and stopper bolts.
Compressors and compressor bolts.
Block binds.

In reference to hammock stanchions, I believe the cause of their breaking so often is in consequence of so many scarphs in the making of them, which ought to be avoided as much as possible in the manufacture of iron work.

Ring and eye-bolts frequently break in driving; I would therefore recommend the rings to be made solid and holes punched for the rings.

Eye-bolts should be made with round eyes, but great care should be taken to bind the under scarph.

Stopper bolts should be made with shoulders, as recommended by Mr. Blake.

Cap. P eye-bolts I would recommend to be made with a hook driven in the cap and bolted to the side of the cap, as model shown.

Compressors and compressor bolts often give way in consequence of their not being made equal to the strain.

I would, therefore, beg leave to recommend dimensions for compressors and bolts, with a model showing a plate that will strengthen the bolt without increasing its size, which I consider to be of consequence, because it will not wound the beam.

Block

Block binds break chiefly for the want of uniformity. I have seen as much as 96 lbs. difference in the weight of two binds for one size block, viz., a 20 inches cat block.

I have recommended a plan for block binds, which, if attended to, would, I believe, prevent accidents from occurring so frequently.

Appendix.

Dimensions for Compressors, and Bolts for Ditto.

Rate.	Middle.	Size of the Ends.	Bolts.
	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
1st - - -	4 $\frac{7}{8}$ by 3 $\frac{1}{4}$	3 $\frac{1}{2}$ by 2 $\frac{1}{2}$	2 $\frac{3}{8}$
2nd - - -	4 $\frac{5}{8}$ „ 3 $\frac{5}{8}$	3 $\frac{1}{8}$ „ 2 $\frac{1}{8}$	2 $\frac{1}{4}$
3rd - - -	4 $\frac{3}{8}$ „ 3 $\frac{3}{8}$	2 $\frac{7}{8}$	—
4th - - -	4 $\frac{1}{2}$ „ 3 $\frac{1}{2}$	2 $\frac{3}{4}$ by 2	2 $\frac{1}{8}$
5th - - -	4 „ 3	2 $\frac{5}{8}$	—
6th - - -	3 $\frac{3}{4}$ „ 2 $\frac{5}{8}$	2 $\frac{1}{4}$ by 1 $\frac{7}{8}$	2
Sloops - -	3 $\frac{1}{2}$ „ 2 $\frac{1}{4}$	2	1 $\frac{7}{8}$
Brigs - - -	3 „ 2	1 $\frac{7}{8}$ by 1 $\frac{5}{8}$	1 $\frac{5}{8}$

(signed) Jno. Smith.

PORTSMOUTH YARD, 13th December 1845.

ANSWERS to the Seven Questions put by the Chairman of the Metal Committee, directed to be furnished, per Admiral Superintendent's Memorandum, 4th December 1845.

1st. What articles of iron or other metals now made by contract might be better made in the dockyard?

- No. 60 to 68. Bolts, chain plates, of sizes and lengths.
 „ 69 to 77. „ driving, headed, as required.
 „ 78 to 88. „ eye, of sizes, headed, as required.
 „ 96 to 102. „ ring, of sizes, headed as required.
 „ 103 to 106. „ ring, stopper, common or shouldered.
 „ 110 to 121. „ ring, in launches and other boats, keels, &c., for hoisting.
 „ 128 to 130. „ triangular, of sizes and length.
 „ 151 to 154. „ swivel, for channels, of sizes.
 „ 155 to 159. „ wainstaff, of sizes.
 „ 233 to 235. Cleats, cathead, large, &c.
 „ 269. Plates, eye, for channels.
 „ 282. Fids, for topmasts.
 „ 302 to 305. Goosenecks, for channels and booms.
 „ 351. Hook, fish, for anchors.
 „ 416 to 423. Iron boom, for yards, jib boom, &c.
 „ 426. „ mast head, or caps, &c.
 „ 435 to 437. „ steps for boats' bowsprits.
 „ 449 to 459. „ knees, breast hooks, and crutches.
 „ 478 to 479. „ outriggers, for sheets and braces.
 „ 522 to 528. „ plates, puttock, &c.
 „ 571. „ shackles, harp, for anchors.
 „ 592 to 601. „ stanchions, hammock awning, boarding, &c.
 „ 718. „ tumblers' ensign staff.
 „ 723. „ bolts, eye, for training.
 „ 726. „ „ ring, for breechings, &c.

Also of Bright Ironmongery or Metal.

- No. 355. Mixed metal eye bolts, with nut, &c., for Sampson's posts.
 „ 986 to 1,000. „ „ plates, octagonal, for knee of head bolts, &c.
 „ 1,128 to 1,133. „ „ bolts, ring, of sizes.

(signed) William Tyler, Master Smith.
 John Russell } Foremen of Shipwrights.
 George Ash }

Appendix.

2nd. What persons have charge of the testing house? How are they paid?

A smith has charge of the testing machine; allowed 4 s. 6 d. per day and beer money.

3rd. What articles of metal were reported last quarter to spare to other yards?

None.

4th. An account of the number and sizes of chain cables of the old contract, having stay pins in the end links, now in store for sea service.

2 $\frac{1}{8}$ in.	-	-	-	975 fathoms.	1 in.	-	-	-	375 fathoms.
2 in.	-	-	-	600 "	1 $\frac{1}{8}$ in.	-	-	-	450 "
1 $\frac{1}{2}$ in.	-	-	-	225 "	1 $\frac{1}{2}$ in.	-	-	-	100 "

5th. An account of obsolete or unserviceable anchors at present in store.

Wood Stocked.

Cwt.	qrs.	lbs.	No.	Cwt.	qrs.	lbs.	No.	Cwt.	qrs.	lbs.	No.
74	2	23	1	68	0	0	1	45	0	0	1
74	0	21	1	67	3	4	1	44	2	21	1
72	0	18	1	66	0	13	1	44	2	4	1
71	2	14	1	55	0	0	1	44	3	0	1
71	2	0	1	54	2	0	1	44	1	20	1
70	3	14	1	53	1	14	1	43	1	0	1
68	2	0	1	46	0	7	1	42	3	21	1
68	1	14	1	45	0	7	1	42	0	7	1
68	0	0	1								

6th. An account of the actual expenditure of coals in the smitheries in this yard for the three years ending 30th June last.

Smithery	-	-	3,525 tons.	Tilt hammer	-	about 5 tons per week.
Millwrights' smithery	170	"				

7th. An account of the weight of iron work issued at the smitheries in this yard for the three years ending 30th June last.

1,512 tons 18 cwt. 3 qrs. 20 lbs.

(signed) Jno. Fincham.
W. Pennell.

DEVONPORT YARD, 1845.

ANSWERS to the seven questions put by the Chairman of the Metal Committee, directed to be furnished, per Admiral Superintendent's memorandum.

1st. What articles of iron, or other metals, now made by contract might be better made in the dockyard?

All large wrought-iron work provided for in the list of black ironmongery, as well as cast-iron hawse pipes, linings to bitts, and cross pieces, and metal castings of all descriptions; but to perform these works there must be an increase in the number of smiths, and a foundry established.

2nd. What persons have charge of the testing house; and how are they paid?

The testing house is in charge of Mr. Neil, the engineer of the dockyard; no one paid especially for this service, nor is it necessary, as one of the engineers employed under Mr. Neil (who has been instructed by Mr. Robinson's foreman) can attend to this service when required.

3rd. An

3rd. An account showing the number of chain cables of the old contract, having stay pins in the end links, now in store for sea service ?

Inches.	No.	Inches.	No.
2	6	1 $\frac{1}{8}$	1
1 $\frac{7}{8}$	6	1	16
1 $\frac{3}{4}$	8	0 $\frac{3}{4}$	1
1 $\frac{5}{8}$	7	0 $\frac{11}{16}$	3
1 $\frac{1}{4}$	3	0 $\frac{5}{8}$	15

4th.—An account of obsolete or unserviceable anchors at present in store ?

Anchors for Wood Stocks of the old plan.

Cwt.	Number.	Cwt.	Number.	Cwt.	Number.
74.	1 Harbour use.	46	2 Harbour use.	16	6 To be cut up.
73	2 „	46	5 To be cut up.	15	2 „
72	1 „	45	12 „	14	1 „
71	2 „	44	1 „	12	1 „
70	1 „	42	2 „	5	1 „
69	1 „	24	1 „		
67	2 „	23	2 „	<i>Anchors, Iron Stock,</i>	
66	1 „	22	2 „	<i>Old Plan.</i>	
53	1 „	21	1 „	16	1 To be cut up.
41	2 „	40	1 Harbour use.	14	3 „
47	2 „	15	1 „		

5th. What articles of metal were reported last quarter to spare to other yards ?

		Number.
Reported 21 June 1844.	Coaks, iron, or boxes for cart wheels - - - - 8 in.	31
„ „ -	Ditto ditto - - - - 6 „	76
„ „ -	Hand-pump hooks - - - - -	100
„ „ -	Ditto spears - - - - -	100
„ „ -	Rings, brass pendant, screw - - - - -	200
„ „ -	Hinges, brass H - - - - - 6 in.	20 pairs.
„ „ -	Screws, brass, for Sir H. Popham's bittacles - - - - -	117
„ „ -	Screws, iron, for cants - - - - -	808
„ „ -	Grates, iron, ventilating - - - - - 11½ by 8 in.	31
„ „ -	Hoops for piles - - - - -	133
Reported 21 October 1844.	Chain cables, equal to hempen - - - - 10½ to 10 in.	3
„ „ -	Ditto ditto - - - - - 6 to 5 in.	5
„ „ -	Cocks, brass, for fire hearths - - - - -	100
„ „ -	Ditto valve - - - - - 1½	20
„ „ -	Fire hearths for 280 men (Brodie's) - - - - -	3
„ „ -	Locks, iron, drawback - - - - -	{ 12 in. 4
		{ 10 „ 21
		{ 9 „ 38
„ „ -	Ditto rim - - - - -	10 in. 24
„ „ -	Rope, copper wire, for lightning conductors - - - - -	{ 1,421
„ „ -	Conductors, lightning, old sort - - - - -	{ fathoms. 75 feet.

Appendix.

6th. An account of the actual expenditure of coals in the smitheries in this yard for the three years ending 30th June last?

Coals, Smithery	-	-	-	-	-	5,783 Tons.
„ Coked	-	-	-	-	-	54 „

7th. An account of the quantity of iron work issued at the smitheries in this yard for the three years ending 30th June last?

2,820 tons 17 cwt. 20 lbs.

(signed) *W. Edye*, Master Shipwright.
W. Stigant, Storekeeper.

CHATHAM YARD, 17th December 1845.

REPLIES to the several Questions of the “Committee on Metals,” contained in Captain *Brandreth’s* Memorandum, 10th December 1845.

1st. What articles of iron or other metals now made by contract might be better made in the yard?

Quarter blocks and topsail sheet blocks.	Iron boom, jib-booms.
Chain plates.	Mast head caps, for cutters and steam vessels’ masts.
Bolts, eye.	Iron step, bowsprit, boats.
Bolts, ring.	Outriggers, ships, for main sheets and braces.
Bolts, ring, stopper or shouldered.	Outriggers, with crutch, for swinging booms.
Bolts, ring, with plates for boats.	Plates, clenching, for bolts.
Bolts, swivel, for channels.	Plates, puttock.
Clasps, mast, round, for boats.	Shackles, anchor, harp shaped.
Clasps, outrigger, for boats.	Spanshackles, bowsprit, bolts, with bolts.
Eye plates for channels, with bolts.	Travellers, ship.
Gudgeons, trysail sheets, forelocked.	Straps, circular, with bolts (foremost).
Hinges, half port, with hooks.	Straps, circular, with ring bolts (aftermost).
Iron boom, outer, lower yards, with hoops.	Castings generally.
Iron boom, inner.	Taps and dies.
Iron boom, topsail.	

2nd. What articles of metal were reported last quarter to spare to other yards?—None.

3rd. Number and size of chain cables, of the old contract, having stay pins in the end links, now in store for sea service?

Size.	Fathoms.	Number.
2	250	2½
1¾	150	1½
1½	600	6
1¼	600	6
1¼	100	1
1¼	100	1
1	200	2
0¾	150	1½
0¾	750	7½
TOTAL		29

4th. An account of obsolete unserviceable anchors at present in store?

	Number.
From 40 to 20 cwt.	6
Of 3 cwt.	1

TOTAL - - - 7 N.B.—None obsolete.*

5th. An account of the expenditure of coals in the smitheries of this yard, for the three years ending 30th June last?

Total coals in three years - - - 3,361 tons.

6th. An account of the weight of iron work issued at the smitheries during the three years ending 30th June 1845?

Total weight of iron - - - 1,367 tons.

(signed) *S. H. Mends*,
J. S. Laire.

* The long-shanked anchors in store, not being obsolete, are not included in this report, although they are invariably refused by captains fitting out.

(signed) *J. T. M. Sadler*, Captain Superintendent on Duty.

SHEERNESS YARD, 20th December 1845.

THE Officers beg to send, as under, the Information required by the Committee of Metals, with the exception of 3rd Question, which cannot be well ascertained. Prepared by Captain Superintendent; Memorandum of 11th instant.

1st. What articles of iron or other materials, now made by contract, might be better made in the dockyard?

Ring and eye bolts to ports, stopper bolts for cables, top tackle bolts and eye bolts for mast caps, and all descriptions of mast gear.

2nd. What articles of metal were reported last quarter to spare to other yards?

None.

3rd. An account of the number and size of chain cables of the old contract, having the stay pins in end links, now in store for sea service?

This information cannot be furnished without incurring considerable expense in labour, as the cables will require to be unstowed for the purpose, &c. See below *.

4th. An account of obsolete or unserviceable anchors at present in store?

Anchors unserviceable, none; obsolete, none, unless the long shanks are so considered; if so they are 127 in number.

5th. An account showing the actual expenditure of coals in the smithery in this yard, for the three years ending 30th June last?

Actual expenditure - - - - - 2,817 tons.

6th. An account of the weight of iron work issued at the smithery, during the three years ending 30th June last?

			Tons	cwt.	qrs.	lbs.
New iron work	-	-	826	7	1	22
Old, new wrought	-	-	78	11	1	24

7th. How much old cast iron has been sold during the last two years?

131 tons 17 cwt.

8th. How much old wrought iron has been issued to the contractors for re-manufacture during the last two years?

286 tons 10 cwt. 1 qr.

(signed) J. Atkins,
Jno. Miller.

Memorandum—Mr. Owen.

If it be important that No. 3 should be answered, pray let me know, and I will write expressly for the information.

J. W. B.—22 December 1845.

Sir,

Sheerness Yard, 27 December 1845.

ADVERTING to your Minute of the 25th instant, directing us to furnish information to the Committee on Metals, regarding the number and sizes of chain cables at this yard having stay pins in the end links, we beg to represent to you that, from the nature of the stowage of the cables in the storehouse, it will enter into a great deal of labour to ascertain the fact by actual survey, as the end links of the cables are not visible, and a large quantity of chain will have to be moved and restowed to do so, besides the cables on board seven of the advanced ships, amounting to upwards of 2,000 fathoms, will also have to be got up and examined.

If an estimated account taken from memoranda in the storekeeper's office will be sufficient, we beg to state that the following chain cables of the old contract (prior to 1839) are in store and on board ships the majority of which are supposed to have stay pins in the end links.

Captain Superintendent Arthur, C.B.
&c. &c.

We are, &c.
(signed) Jno. Gaze,
J. Atkins,
John Miller.

Appendix.

SUBMITTED to Captain Brandreth, observing that, to arrive at the required particulars by actual survey would occupy the time of fifteen labourers upwards of a month.

(signed) *Richard Arthur,*
Captain Superintendent.

In Store.

2 in. - - - 25 fathoms.	1 $\frac{1}{8}$ in. - - - 1 cables.
1 $\frac{7}{8}$ " - - - 2 number.	1 " - - - 5 "
1 $\frac{3}{4}$ " - - - 75 fathoms.	0 $\frac{1}{6}$ " - - - 2 "
1 $\frac{3}{8}$ " - - - 62 "	0 $\frac{5}{8}$ " - - - 15 "
1 $\frac{1}{2}$ " - - - 3 cables.	

On Board Ships.

2 $\frac{1}{8}$ in. - - - 7 $\frac{1}{2}$ cables. | 2 in. - - - 13 cables. | 1 $\frac{1}{2}$ in. - - - 2 cables.

MR. MURRAY'S REPORT on the DOCKYARD SMITHERIES addressed to Commodore Superintendent Sir F. A. Collier.

Sir,

Woolwich Yard, 26 June 1843.

IN accordance with your Minute on Sir John Barrow's letter of the 16th May, containing their Lordships' instructions that I should proceed to Portsmouth, Plymouth, Pembroke, Sheerness, and Chatham, to examine the several smitheries and report fully on such points as my experience might enable me to suggest for their improvement, particularly with reference to the mode of working and the quantity of work performed. I have visited those establishments, and now beg leave to report, as follows:—

In the two smitheries at Portsmouth I would recommend greater system and better arrangement in the management of the men, in the appointing certain men to certain descriptions of work, and a better supply of proper tools. These tools are of two kinds, one fixed in the anvils, and the other used for fashioning the upper surface of the work under operation, the men striking upon the top of the tool instead of striking the work itself: all the fires at the smithery are already provided with some of these tools, but not sufficient in number, and those they have they do not arrange in the best manner. I recommend that the master smith should get the tools belonging to each fire properly and neatly arranged on racks or pins, so that they can be seen at a glance, and the workman be able to put his hand upon any one of them without any loss of time. It will be necessary to have a complete set of tools (fashioning) for all descriptions of work, to each fire, if a proper system be introduced in apportioning the work to different sets of men according to their stock of tools. The master smith should make a personal inspection of the tools belonging to each fire every Saturday night, when they ought all to be in their places, and in good order.

I would recommend that the smitheries should be thoroughly swept down twice every year, and whitewashed. There is at present much more smoke and dust, especially in the large smithery, than there ought to be, arising from a bad draught in the chimneys; this can be improved. But I will defer my remarks upon draughts until reporting upon "Sheerness Smithery." In the large smithery the ventilation in the top of the roof is very complete, but the roof itself is very badly formed, having a portion of its flat extending from the back of the fires to the side walls all around the smithery, and the smoke hangs very much underneath this flat. I would recommend that two raised lights, with the sashes on hinges, or two ventilating pipes made of lead or zinc, bell-mouthed at the bottom and carried a considerable height and turned over at the top in the usual way, should be put upon these flats, and also that some additional ventilation should be given immediately over the large anchor fire. The light into this smithery is very deficient, and ought to be remedied as much as possible, as it is most important that men should have plenty of light to enable them to execute their work with dispatch and correctness. I would recommend that those windows within convenient reach should be wiped down every week by the men at the fire nearest each window, and that all the windows should be properly and thoroughly cleaned twice every quarter year.

This smithery, as originally built, formed three sides of a square, with lights from the outside and also from the interior court; but as the latter windows have unfortunately been blocked up by the erection of the steam engine and boilers for the tilt hammer and fans, I would recommend that some additional skylights should be put into the roof, and that the upper part of the brickwork filling up those windows next the boilers should be taken out, by which a good borrowed light would be obtained from the boiler-house, which is well lighted by skylights.

I am given to understand that the roof is very old, and that much of the timber is not in a good state. If this be the case I would very strongly recommend that an entirely new roof should be substituted, by which those flat parts of the present roof would be done away with, and good light be obtained by skylights.

The tilt hammer was not at work at the time of my visit, but I would recommend an additional air furnace to be built in connection with it, as in some kinds of work the time between the heats is so long that the men, by taking a heat alternately from each furnace,

can

can do a great deal more work, some of this work being of such a nature that the blast furnace cannot be used for it; and as the forge men require to vary the speed of the engine according to the work they are executing, and occasionally must lessen it to such a degree as to destroy the efficiency of the fan blast from the fan driven by the engine, I would recommend that the fan in connection with the steam engine of the metal mills be worked as the regular fan (if there be no objection on the part of the metal mills), and that the other should be considered as the extra fan, and only used on such occasions as may be necessary. Additional machinery for drilling and screwing, and punching and cutting machines ought to be erected; and as there is not sufficient room for this to be done properly within the present building, or in the small part of the interior court yet remaining, I would therefore recommend that additional space beyond the present smithery be taken for this purpose.

The small smithery under Mr. Taplin's charge was in excellent order in all the respects mentioned above. As to the quantity of work performed, I could not obtain in this yard any return (excepting as regards anchor work), of the weight of any given quantity of work, and the time spent by the men on this work.

The remarks and suggestions I have to make on this subject, as they will refer to all the smitheries, I will defer till the latter part of this report.

Plymouth South Smithery,

I FOUND in much the same state as the smithery at Portsmouth; I would therefore report the same recommendations as to tools and men, and to cleaning the windows, and periodically cleaning and whitewashing.

Its original form has also been three sides of a square, but in this case the interior court has been roofed over and made a part of the smithery. In addition to all the windows of the interior court having been thus rendered useless, the smithery has been made still darker by three small cabins put up in it, each of which stops the light of one window, and several more of the outside remaining windows are stopped by buildings attached to the smithery. I would therefore recommend that the three cabins in the interior should be removed, and that the roof over the interior court be taken off again, and these windows restored.

A temporary, long, narrow, wooden shed, with a number of small fires, is attached to this smithery, and as it is too narrow and too low in the roof, and is so much out of the way of the foreman's superintendence, I would recommend that it be removed, and that a new wing be built in its place opposite to, and corresponding with, the wing containing the tilt hammer and engine; as many fires would be obtained in this new wing as would compensate for those done away with, both in the interior court and this temporary shed. The present coal yard could also, if necessary, be made available for the extension of the smithery; and the interior court, as restored, could be converted into a coal yard, with the wall kept at least 18 feet clear of the smithery all round.

The roof of this smithery is in a bad state, and as it must undoubtedly be removed in a comparatively short time, I would recommend that no expense should be incurred in repairing and strengthening it to carry any Hercules hammers; but that these hammers should be first erected at the North Smithery, and that when it is determined to erect them in this smithery, that a new roof should be put up at the same time, and the whole done in a really good and satisfactory manner.

The building of a house for drilling and punching in connexion with the present steam engine ought to be carefully considered, so as not to interfere with the light or any of the arrangements of the smithery or forge, and any additional grindstones for the shipwrights ought to be kept out of the present buildings and their enclosed yard, and put alongside the launching slip for the boats and the tops. The mode proposed for carrying the power from the tilt hammer steam engine to the fan, to be used in case of accident to the other engine, could in my opinion be improved by carrying a shaft in the interior of the building.

Plymouth North Smithery,

I FOUND in better condition, but I would repeat the same recommendation as to tools, men, &c. The building containing the tilt hammer and steam engine blocks up several windows; I would therefore recommend that one or more skylights should be put into the roof at this place to compensate for the lost windows.

There is a wall enclosing a yard immediately behind this smithery, and within a few feet of it, and as I am not aware of any objection to this wall being taken down, I would recommend that it be entirely removed. In erecting any Hercules hammers in the smithery, I would most strongly recommend that the power to drive them should be conveyed from the steam engine by iron shafts and wheel work, and not by the intervention of long leather belts.

With regard to the quantity of work performed, I can only report what I reported as to Portsmouth; the draught of the chimneys in these smitheries I would refer to my subsequent remarks on this subject. Bearing in mind their Lordships' instructions that I should consider that the importance of smitheries will increase with the extension of marine steam machinery, and the means of repairing the same in the several dockyards, especially in these two yards, I beg to report that these smitheries are in themselves quite fit for the execution of any smith's work required for this purpose, but that the men at present employed in them would not do the work with advantage, from their not being accustomed to it.

Appendix.

It appears to me from all I could learn, that in both of these yards the whole of the fires and men are required for the current services, and could not be spared for the repair of steam machinery without inconvenience to the work under the master shipwright.

Much machinery is not required in a smithery for engine work, but if it be proposed to make all the heavy forging, or uses as they are called, then a totally distinct building with a number of air furnaces and several different hammers must be erected.

Pembroke Yard Smithery,

I FOUND well lighted, but requiring the same recommendations to be carried out as to the tools, men, &c. I examined the plan as proposed for the additional smithery that is to be built, and as I considered that I could improve the arrangements in several material points, I remained at Pembroke for some time at the request of the captain superintendent to make a rough outline of a plan. The objections to the previous plan were that the whole of the lights on one side were blocked up by the building attached to it, and that two of the windows on the opposite side were blocked up by two fires being built exactly opposite them. Skylights might have subsequently been added, but they are not by any means so good as proper windows, and should only be adopted when other circumstances have rendered them necessary.

The space intended for the tilt hammer was very much too small; no room was allowed for the necessary furnaces. The fires were irregularly placed and not well arranged, as there were only nine fires in an area greater than the right wing of Chatham Smithery, in which there are 21 fires, and three of them large anchor fires. In the plan proposed to be substituted, there will be ample light and 15 fires, and if the small fires are built in pairs, as in Chatham and the other smitheries, there will be 20 fires regularly arranged in three straight lines, and giving every convenience to the men. The tilt hammer is now proposed to be put into the same building with the two steam engines; these to be of eight-horse power each, with two boilers of 16-horse power each, and also a good light plumber's shop; a place for shipwrights' grindstones, and a good light drilling shop in it. I would recommend that besides the drill there ought to be a screwing machine, a cutting and punching machine, a turning lathe with 10-inch headstocks and cast-iron bed, and a larger break lathe of the same kind, capable of turning a wheel or piston of eight inches in diameter; also a drilling or boring machine capable of boring an 18-inch hole, two feet deep in the centre of a wheel six feet in diameter, in case of emergency. These tools are recommended with a view of rendering it possible to execute a repair to any steamer on any pressing emergency, which at present could not be done for want of these means. Either engine can be made available for driving the fans and drilling apparatus, and arrangements are made for driving a Hercules hammer in the smithery.

With regard to the quantity of work performed, I obtained a return of the iron work of the "Superb," 80-gun ship, and the amount of wages paid to the men for manufacturing the same. It was 112 tons 7 cwt., costing 1,272 l. 7 s., or at the average rate of 11 s. 3½ d. per cwt. for the whole of the work throughout the ship.

Chatham Smithery,

I FOUND better lighted and with a better draught to the chimneys than in any of the other smitheries; the same recommendations, however, require to be repeated as to tools, men, &c. I would recommend that wheels and shafting should be introduced instead of long leathern belts for conveying the power from the steam engine to the distant parts of the smitheries, for the purpose of driving the Hercules hammers; and if the work is not too far advanced, for the additional hammers that are to be erected. I would strongly recommend that the complication of machinery in the present hammers be avoided, and that they should be made similar to those at Woolwich, which are simple and effective, and are not so expensive in the first cost, and will require much less expense and attention to keep them in repair. The consideration as to the attention required becomes always of more importance when machinery, as in this case, is so situated that it does not come under the inspection of the superior officers in their general rounds, and is not got at by the men without some trouble, so that they do not go to it to keep it clean and well oiled so frequently as they ought to do. The advantage gained through the additional machinery attached to this hammer for moving it in different directions does not appear to me of such importance as to counterbalance those disadvantages, when we consider the very complete provision made for moving the work under the hammer.

With regard to the quantity of work performed, I obtained a return of the iron work of another 80-gun ship of the same class as the "Superb," and in this case the weight was 118 tons 6 cwt. 2 qrs. 5 lbs. at the rate of 11 s. 5½ d. per cwt., the amount paid for wages being 1,357 l. 18 s. 6 d.

Sheerness Smithery,

I FOUND well lighted and an excellent building, but with a very bad draught in the chimneys. I would repeat the same recommendations as to tools, men, &c.; and also that the iron of the roof should be painted.

In the erection of the Hercules hammers I would recommend that they be made similar to those at Woolwich for the reasons detailed above, and that the power should be conveyed by shafting and wheelwork.

Several fires were standing idle in this smithery, even though iron work is so much wanted that a new smithery is to be built. I would recommend that these fires be got to work, and that more men should be taken into the service for this purpose, if necessary.

The

The want of draught in the chimneys arises from a want of attention to the common principles by which draught is regulated. The chimney in the chief anchor fire is built solid to a height of 18 feet 6 inches from the level of the floor, at which height there are 10 square holes intended for the entrance of the smoke; there is so much ventilation in the roof, and the smithery is so very airy, that there are constant draughts through it in all directions. It is evident that the smoke from this fire, rising outside the chimney, will be cooled down by mingling with the cold air before it reaches the height of these holes into the flue, and must be directed out of its course by the cross draughts, and the little that now enters ascends with a very moderate velocity, having lost its heat, and its consequent rarity. I recommend that this chimney be removed, and a new one built instead of it on the same foundation. The want of draught in some of the other chimneys arises from the same cause, viz., the great height of the entrance for the smoke above the fire; others of these chimneys have no draught from another cause, viz., that the flue to carry off the smoke from the fire is so suddenly contracted at about 15½ feet up from the floor into half its proper size, by its being divided at this place into two flues, one of which is closed to the smoke from the fire, and has an opening into the smithery, intended for ventilation, I presume; others are divided in the same manner lower down, with the view of carrying off the smoke that passes the lower entrance. I recommend that the bottoms be knocked out of all these second flues, and that the interior of the chimneys, when this is done, be again made good and smooth. The partition, which runs right up to the top, may be allowed to remain, sharpening the bottom edge so as to divide the draught somewhat gradually; it will be unnecessary to remove it, as this would be expensive, and as there will be sufficient area for the smoke in the two flues, the hole from the outside into the second flue to be, of course, bricked up.

For the improvement of the draught in all the smitheries, and for the guidance of the person who may superintend these alterations, if they should be approved of and ordered to be carried into effect, I would lay down the following general principle:—

As the strength of the draught depends on the heat of the smoke, it is of great importance that cold air should not be allowed to mingle with it; the entrance of the smoke into the flue should therefore be as close upon the fire as circumstances will permit. The height of the bottom edge of the entrance of the smoke may be as follows:—

	Ft. in.	
For the largest anchor fire	3	3 above the floor level.
„ second „	3	0 „ „
„ middling „	1	8 } above the centre of blast pipe.
„ smaller „	1	6 }
„ smallest „	1	2 „ „ „

The proper area of the flues is also a most essential point to be attended to, and the keeping up a proper proportion between the area of the entrance and the exit. The extent to which the smoke will be cooled during its ascent in the chimney will not be great, as the brickwork soon gets warm, and it is not a good conductor. A decrease of a third in the area will therefore be found amply sufficient to correspond with the contraction of the smoke due to its decrease in temperature. (The contraction of gases for each degree of temperature Fahrenheit is $\frac{1}{480}$ th part of the volume at 32°.) The following area will be found to answer well, as proved in practice:—

	Area of Flues at Bottom.	Area of Flues at Top.
	Square Inches.	Square Inches.
For the largest anchor fire	1,200	800
„ second „	960	640
„ middling „	750	500
„ smaller „	480	320
„ smallest used in the service	240	160

The brickwork at the bottom edge of the entrance may be levelled off with advantage, as also the top edge inwards, so as to give as fair a course as possible to the smoke. All awkward turns and square corners, and any sudden changes of form in the flue ought to be avoided, as air, on its way through such passages, is even more apt than water to form eddies, and consequently prevent the equable flow of the due quantity. The height of the chimneys ought to be about 45 or 50 feet. I would recommend that the chimneys, in all the smitheries, be made to approximate as closely as possible to these directions, and that the area at top and bottom should be made to correspond as nearly as possible with one another in the foregoing proportions, even though the amount of area should not be what is wished.

I have examined the plan for the proposed extension of the present smithery at Sheerness, and would recommend that the number of small fires be reduced by one pair, as they are at present much too near each other, and too confined to allow the men to be able to work with advantage. The width of the house I would also recommend to be increased to 24 feet in the inside, as this would allow of a vice bench being placed along the front wall, facing the windows, and would give sufficient room for the hammermen to swing their

Appendix.

their hammers. The wall at the end of the coal yard and the oakum yard is proposed to be built at an acute angle to save the disturbing of a footpath, and the view of the yard from the gate. An angular gable to any building is ugly and objectionable; so that if the wall cannot be built in the same line as the end wall of the smithery, I would recommend that the present end wall of these yards be allowed to remain as it exists, in preference to incurring the expense of removing it, and building this angular wall, as the room to be added to these yards by the intended change, is comparatively small.

With regard to the quantity of work performed at the different yards, I have not been able to form any decided opinion, though I have examined the books and endeavoured, as far as possible, to compare the quantity of work delivered, with the time spent upon it. The manner in which the men's time is kept, and the form in which the returns, both as to time and materials are made to the storekeeper, vary considerably. I obtained returns of all the particulars of several anchors of different weights, and taking an average of similar anchors from each yard, I find the expense per cwt. of finished anchors to be as follows, viz. :—

	Wages, including Beer Money.	Coals, Weight.	Value at 18s. per Ton.	Iron, Weight of.	Value at 9s. per Cwt.	Total Value of these Items.
	£. s. d.	Cwt. qrs. lbs.	s. d.	Cwt. qrs. lbs.	s. d.	£. s. d.
Plymouth - - - -	1 16 4	6 1 10½	5 8½	1 1 16½	12 4	2 14 4½
Chatham - - - -	2 2 6½	5 0 19½	4 7½	1 1 10½	12 1	2 19 3½
Sheerness - - - -	2 - 1¾	6 2 5½	5 10¾	1 2 8½	14 2	3 - 2½
Portsmouth - - - -	2 4 2¼	8 0 2	7 2½	1 2 6	14 -	3 5 4¾
Average Value of Wages, Coal, and Iron - - - -						2 19 9¾
Probable amount of Rent, wear and tear of Buildings, Tools, and Machinery, use of fans, machinery, superintendence, &c., &c.						- 5 -
Approximate Net Cost of Anchors between 70 and 95 cwt. - - - £.						3 4 9¾

ANCHORS from 30 to 50 cwt.

	Wages, including Beer Money.	Coals, Weight of.	Value at 18s. per Ton.	Iron, Weight of.	Value at 9s. per Cwt.	Total Value of these Items.
	£. s. d.	Cwt. qrs. lbs.	s. d.	Cwt. qrs. lbs.	s. d.	£. s. d.
Plymouth - - - -	1 11 6¾	6 0 12¾	4 8¾	1 0 25¾	11 -¾	2 7 3¾
Portsmouth - - - -	1 12 8	6 1 21	5 9¾	1 1 25½	13 3¾	2 11 9½
Chatham - - - -	1 16 6½	4 3 8¾	4 4	1 1 13¾	12 4½	2 13 2¾
Sheerness - - - -	1 15 9¾	7 0 0½	6 3½	1 2 13½	14 6¾	2 16 8
						£. 10 8 11¾
Value of Wages, Coal, Iron, &c. - - - -						2 12 2¾
Rent, &c. - - - -						- 4 6
						£. 2 16 8¾

I would recommend greater care and attention in keeping the accounts, from which the foregoing have been made out, and that proper books for the purpose should be provided. In justice to the other yards, I may say that I think there is a mistake in the return from Chatham as to the quantity of coals used. I would recommend that one uniform system, more in detail than at present, should be introduced into those books, kept by the master smith or the writer at the smithery, as they are the sources from which the storekeeper must receive the necessary information, and are consequently of great importance; also that greater attention should be paid to the weighing of the articles delivered.

A large proportion of the work consists of comparatively small articles, and the scales now in use are so large that they ought not to be used to weigh anything under half a hundred-weight; I would therefore recommend that each smithery should have a smaller pair of scales allowed to them in addition to the larger ones. I would further recommend that an account should be kept with each smithery, charging it with all the wages paid to the men, all the coals, iron, and other stores delivered to it, and all other expenses, and giving it credit for all the work delivered by it, under the heads and at the prices already fixed, and that the account should be made up every quarter of a year, or at least every half year, and a balance shown either against or in favour of the smithery.

It is unnecessary here to enter into all the details as to the mode of keeping the accounts, such as that all works in hand in the smithery at the time of commencing and closing the account must be valued, and charged and credited accordingly, and that the iron should be given out to smitheries by weight at a proper value, and not as at present, by number, without any reference to the weight. A similar account should also be kept against the forge. These accounts will test the correctness of the prices at which the work is charged, and the cost of the forgings or any iron work can be found and a proper check maintained on the quantity of materials used.

Returns could then be periodically made out, showing the cost in wages of all new iron work per cwt.; the cost of manufacturing old iron by the forge, &c.

As a general improvement, connected with the whole of the smitheries, I would recommend that all the screwing apparatus should be made uniform, so that all the bolts and nuts of the same size should have the same screw. This appears to me to be a matter of great

great importance, and not attended with great expense; and as the sacrifice of the hand stocks, with their taps and dies, is now in the course of being made by the substitution of screwing machines, I think a better time could not be chosen for the change. A uniformity of taps and dies throughout the whole country has already engaged the attention of engineers generally, a proposal for it having originated with the late Mr. Maudsley, and been since at various times canvassed with very general approval. If this proposal for uniformity be approved of by their Lordships, it might be carried throughout the whole service, and contractors for steam engines, and all machinery, be required to conform rigidly with the pattern screws that would be provided, the saving of expense in repairs would be found to be very great, and would in a very short time compensate for all the expense at first incurred. The threads of the screws now in general use by a very large proportion of the manufacturers come wonderfully near each other, without, however, exactly coinciding.

Not having previously mentioned Mr. Nasmyth's steam hammer, I ought not perhaps to close this report without referring to it and giving an opinion as to its fitness for use in these smitheries. There are several practical points connected with its working and its continuance in good order of which I am very doubtful, and the hammer has not yet been brought into practice so as to work well, and that the question is only one of its fitness in comparison with hammers at present in use. I would say that its chief advantage, as urged by Mr. Nasmyth himself, viz., that the height of the lift can be altered to suit any size of work, is not of very great advantage in these smitheries. The kind of work done in them does not vary in so great a degree as to render the present hammers very objectionable; and if one of the Woolwich hammers was altered to suit the work in the habit of being made throughout the service, I believe the quantity of such large work to be so small that it would make what is required with the greatest ease. If it were proposed to make large forgings, and of all the varied shapes and sizes required for marine steam engines, then the case would be different, as I thus consider its chief, if not its only advantage, to be of comparatively little value in these smitheries; I think the disadvantages attending its use would more than counterbalance it. It requires a separate boiler, with all its apparatus, and a fireman for itself, and power, either manual or brought from a steam engine for working the feed pump. The consumption of steam during the actual use of the hammer would undoubtedly be greater than if the same quantity of steam were used through the medium of a condensing engine, as at present; and as a hammer is not in constant unintermitting use, the steam generated during the intermission must be blown off at considerable loss. If the hammer were proposed for the anchor-smiths in lieu of the present Hercules hammer, the steam might be required to be got up for the sake of striking perhaps for only one half-hour during the whole day, which would be a great expenditure of coal in comparison with the present practice, as the engine is at work for other purposes, and the Hercules can be set at work and a very few blows taken at any time with very little expense or trouble. I am therefore led to think that no important advantages would be gained by the introduction of Mr. Nasmyth's hammer, even if it should prove successful in practice.

I have, &c.

(signed) *A. Murray.*

COST OF GALVANISING CHAIN CABLES.

9, Steel-yard, Upper Thames-street, London,
9 January 1846.

Sir,

IN reply to your letter of the 8th instant we beg to inform you that we have repeatedly galvanised chains, and can confidently recommend our process.

The following would be our charge for galvanising the same.

	£.	s.	d.		£.	s.	d.
1 in., $\frac{7}{8}$ in., $\frac{3}{4}$ in.	-	11	-	per Ton.	$\frac{3}{8}$ in.	-	14 5 - per Ton.
$\frac{11}{16}$ in., $\frac{8}{16}$ in., $\frac{9}{16}$ in., $\frac{1}{2}$ in.	12	-	-	"	$\frac{1}{16}$ in.	-	16 5 - "
$\frac{7}{16}$ in.	-	14	-	"	$\frac{1}{4}$ in.	-	16 10 - "

We have, &c.

(signed) *Morewood & Rogers,*
Patentees of Galvanised Tinned Iron.
Pro Jno. Kincard.

The Chairman of the
Committee on Metals, Admiralty.

To Captain *Brandreth, R.E., &c., &c.*

Dear Sir,

London, 18 December 1845.

ACCORDING to promise, I send the experiments I have made on iron at different times, with some of the accounts I kept at the smithery at Chatham, with the forms I introduced at Chatham, and wishing to do the same at Portsmouth, though I have not been quite so successful in carrying them out. I hope you have got the accounts called for while at Portsmouth.

I have, &c.

(signed) *Jno. Fincham.*

CHATHAM YARD, 6th July 1843. - - - - -

AN ACCOUNT of the IRON DRAWN from STORE and Expended in Performing

Iron Drawn from Store.							Iron Expended.			
Quantity Issued.							Iron Work			
Ship or Service.	Boltstave.	Square.	Flat.	Plate.	Old Wrought.	TOTAL Quantity.	Boltstave.	Square.	Flat.	Plate.
	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>
Anson - -	124 0 23	231 3 1	60 2 1	- -	34 0 0	450 1 25	108 0 20	195 2 6	58 2 10	- -
Castor - -	30 2 13	8 1 14	10 0 15	1 0 24	50 3 10	101 0 20	28 0 20	7 2 0	8 2 0	0 3 26
Comus - -	3 1 20	4 2 14	- -	- -	- -	8 0 7	3 0 20	3 3 26	- -	- -
Fleet - -	2 2 0	1 1 0	2 1 0	- -	10 2 0	16 2 0	2 0 10	1 0 0	2 2 0	- -
Hermes - -	19 2 8	10 0 20	23 1 10	6 0 3	7 3 2	66 3 15	15 0 20	10 3 0	27 1 15	5 2 26
Meander - -	79 3 4	21 3 6	41 3 17	7 3 5	75 2 23	226 3 27	69 3 9	18 0 7	39 2 6	7 2 0
Penelope - -	- -	- -	- -	- -	- -	- -	1 3 6	1 3 14	- -	- -
Raleigh - -	2 2 0	2 3 0	- -	- -	- -	5 1 0	1 1 14	1 3 26	- -	- -
Ruby - -	- -	- -	- -	- -	- -	- -	1 0 0	- -	1 0 11	- -
Trafalgar - -	25 1 3	8 0 7	8 2 2	- -	7 1 0	49 0 12	23 2 24	6 2 4	10 2 14	- -
Urgent - -	5 2 0	2 3 6	10 2 5	- -	10 3 20	29 3 3	5 3 9	2 1 8	9 3 20	- -
Victoria Yacht -	17 2 16	10 2 0	69 3 11	- -	- -	97 3 27	17 1 22	9 3 15	60 1 5	- -
Virago - -	18 2 2	10 2 8	19 0 25	- -	6 1 10	54 2 17	16 3 0	7 3 2	20 1 17	- -
Calypso - -	- -	- -	- -	- -	- -	- -	1 2 15	- -	- -	- -
Conversions -	35 1 25	37 3 14	360 0 22	- -	145 3 22	579 3 27	30 1 6	38 2 25	404 1 15	- -
Yard Services -	8 2 14	7 2 17	7 0 21	- -	8 0 0	31 1 24	6 1 4	8 1 10	6 0 20	- -
TOTAL - -	373 2 17	358 0 23	614 0 17	15 0 4	357 1 3	1,718 1 8	- -	- -	- -	- -

Memorandum.—The excess of iron expended more than the quantity issued from stores is accounted for by the master smith from the conversion and alteration of articles new wrought, and charged as new or old iron, and also from the appropriation of surplus iron previously demanded.

Two Months' Expenditure on Task Work. - - - - -

A STATEMENT of the EXPENSE of MATERIALS and LABOUR in

M A T E R I A L S.					
		Species.	Quantity.	Rate.	Value.
			<i>Cwt. qrs. lbs.</i>	<i>£. s. d.</i>	<i>£. s. d.</i>
New Iron	- - -	Boltstave	373 2 17	- 8 -	149 9 3
New Iron	- - -	Square	358 0 23	- 8 -	143 5 9
New Iron	- - -	Flat	614 0 17	- 8 -	261 - 6
New Iron	- - -	Plate	14 1 25	- 10 9	7 15 7
Old Iron	- - -	Various	378 3 15	- 4 -	75 15 6
Coals	- - -	-	201 tons	- 15 11	159 19 3
Oil	- - -	-	92 gallons	- 2 1½	9 15 6
Labour performed by :					
The Yard establishment		- - -	- -	- -	1,272 9 1
Hired smiths		- - -	- -	- -	392 7 2
TOTAL, Iron			1,739 1 15	£.	807 1 4
					1,664 16 3

The average expense of labour 13s. per cwt. of iron, or about 1½ d. per lb.

CHATHAM YARD, 6th July 1843.

WORKS at the SMITHERY, from the 1st May to the 30th June 1843, on Task Work.

Iron Expended.				Total Quantity Expended.								Balance.	
Converted from		Loss of Iron in Manufacturing Work.											
Old Wrought.	TOTAL Quantity.	New Iron.	Old Iron.	Boltstave.	Square.	Flat.	Plate.	Old Wrought.	TOTAL Quantity.	New Iron.	Old Iron.		
<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>		
29 2 16	391 3 24	44 1 20	3 3 0	121 2 22	219 0 6	65 3 26	- -	33 1 18	440 0 16	—	—		
43 3 21	89 0 11	5 2 17	5 2 0	31 2 24	8 1 20	9 2 14	0 3 26	49 2 0	100 1 0	—	—		
- -	7 0 18	0 3 23	- -	3 2 6	4 1 25	- -	- -	- -	8 0 3	—	—		
9 3 17	15 1 27	0 2 17	1 0 26	2 1 4	1 0 16	2 3 7	- -	11 0 15	17 1 14	—	—		
9 1 1	68 1 6	7 1 22	1 0 17	16 3 16	12 0 10	30 3 6	5 2 26	10 1 18	76 3 17	—	—		
70 1 26	205 2 22	16 0 11	8 3 17	78 1 24	20 1 7	44 2 0	7 2 0	79 0 5	239 3 8	—	—		
- -	3 2 20	0 1 24	- -	2 0 3	2 0 13	- -	- -	- -	4 0 16	—	—		
- -	3 1 12	0 1 18	- -	1 2 5	2 0 25	- -	- -	- -	3 3 2	—	—		
- -	2 0 1	0 1 1	- -	1 0 14	1 0 26	- -	- -	- -	2 1 12	—	—		
8 2 18	49 3 14	5 0 16	1 0 9	26 3 23	7 1 12	11 3 23	- -	9 2 27	56 0 1	—	—		
10 0 25	28 1 6	2 3 23	1 1 3	6 2 7	2 2 12	11 3 13	- -	11 2 0	32 2 4	—	—		
- -	87 2 14	10 0 18	- -	19 2 14	11 0 13	67 3 9	- -	- -	98 2 8	—	—		
5 0 18	50 0 9	6 1 1	0 2 16	18 3 18	8 2 27	22 3 15	- -	5 3 6	56 1 10	—	—		
- -	1 2 15	0 0 21	- -	1 3 8	- -	- -	- -	- -	1 3 8	—	—		
39 0 14	513 1 4	50 2 0	4 3 16	34 0 10	43 0 5	454 1 20	- -	44 0 2	576 0 9	—	—		
10 0 1	31 1 7	2 2 11	2 2 7	7 0 8	9 1 15	6 3 22	- -	11 3 8	35 0 25	—	—		
- -	- -	- -	- -	374 1 10	353 1 8	729 2 15	14 0 24	266 1 15	1,739 1 13	*111 3 21	90 3 16		

* The balance in *italics* is the excess of new iron expended above the quantity of new iron drawn from store.

Two Months' Expenditure on Day Work.

Performing WORKS at the SMITHERY, from the 1st May to 30th June 1843.

M A T E R I A L S.					
				Species.	Quantity.
					<i>Cwt. qrs. lbs.</i>
					<i>£. s. d.</i>
					<i>£. s. d.</i>
					<i>£. s. d.</i>
New Iron	-	-	-	Boltstave	—
New Iron	-	-	-	Square	—
New Iron	-	-	-	Flat	—
New Iron	-	-	-	Plate	—
Old Iron	-	-	-	Various	—
Coals	-	-	-	—	—
Oil	-	-	-	—	—
Labour performed by:					
The Yard establishment				- - -	—
The hired smiths				- - -	—
TOTAL, Iron				- - -	—

The average expense of labour s. d. per cwt. of iron, or d. per lb.

CHATHAM YARD, 6th July 1843. - - - - -

Iron Drawn from Store.							Iron Expended.			
Quantity Issued.							Iron Work			
Ship or Service.	Boltstave.	Square.	Flat.	Plate.	Old Wrought.	Total Quantity.	Boltstave.	Square.	Flat.	Plate.
	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>
Anson - -	- -	20 3 9	8 2 10	- -	- -	29 1 19	- -	18 1 19	7 2 10	- -
Castor - -	- -	- -	- -	- -	- -	- -	1 1 11	0 2 0	1 2 0	- -
Comus - -	- -	9 0 26	- -	- -	- -	9 0 26	- -	8 1 27	4 3 0	- -
Curaçoa - -	14 2 10	6 1 0	- -	- -	20 0 0	42 3 10	12 2 6	5 2 0	3 0 0	- -
Fleet - -	3 3 12	3 1 10	- -	- -	- -	7 0 22	2 3 12	2 3 10	1 0 20	- -
Hermes - -	5 2 0	- -	6 1 9	- -	- -	11 3 9	4 1 0	1 3 0	8 2 12	- -
Lighters - -	- -	- -	- -	- -	- -	- -	2 1 21	- -	- -	- -
Penelope - -	174 3 21	16 1 0	539 2 0	185 3 21	55 3 14	971 2 0	155 1 21	12 2 0	479 0 12	183 1 8
Raleigh - -	9 2 16	58 0 18	- -	- -	4 0 0	71 3 6	8 2 0	50 0 18	- -	- -
Ruby - -	- -	- -	- -	- -	- -	- -	- -	4 1 5	- -	- -
Tenedos - -	72 3 0	212 1 0	146 2 14	- -	52 2 7	483 0 21	64 2 0	185 3 0	130 2 14	- -
Trafalgar - -	71 2 0	12 0 0	12 2 4	- -	3 0 20	99 0 24	63 2 0	10 0 0	12 3 6	- -
Urgent - -	- -	- -	- -	- -	- -	- -	- -	2 3 24	- -	- -
Watt - -	17 3 0	6 0 16	- -	- -	- -	23 3 16	15 1 2	4 0 16	- -	- -
Blockship - -	48 2 0	- -	- -	- -	14 3 14	60 1 14	42 3 0	1 2 3	4 2 0	- -
Conversion - -	14 2 0	18 1 0	142 3 7	- -	134 0 12	299 2 19	12 2 0	6 1 0	165 2 13	- -
Yard Service - -	29 3 0	80 1 16	19 3 0	- -	34 3 22	164 3 10	26 0 0	70 0 26	23 2 0	- -
TOTAL - -	463 1 3	433 0 11	876 0 16	185 3 21	316 2 5	2,275 0 0	- -	- -	- -	- -

Memorandum.—The excess of new iron expended more, and of old iron less, than the quantity drawn from store, is accounted for by the master smith from the reconversion of many articles issued as old wrought, but requiring a considerable alteration, are charged as new iron.

Three Months' Expenditure on Day Work.

A STATEMENT of the EXPENSE of MATERIALS and LABOUR in PERFORMING WORKS at the SMITHERY, from the 1st January to the 31st March 1843.

M A T E R I A L S.					
	Species.	Quantity.	Rate.	Value.	Labour.
		<i>Cwt. qrs. lbs.</i>	<i>£. s. d.</i>	<i>£. s. d.</i>	<i>£. s. d.</i>
Iron, new - - -	Boltstave -	463 1 3	- 8 -	184 18 3	-
Iron, new - - -	Square -	433 0 11	- 8 -	173 4 10	-
Iron, new - - -	Flat -	876 0 16	- 8 -	372 7 5	-
Iron, new - - -	Plate -	183 1 8	- 10 9	98 10 8	-
Iron, old wrought - -	Various -	284 3 16	- 4 -	56 14 3	-
		<i>Tons.cwt.qrs.lbs.</i>			
Coals - - - -	- -	209 10 0 0	- 15 11	166 14 7	-
Oil - - - -	- -	124 gallons	- 2 1½	13 3 6	-
Labour performed by :					
The Yard establishment - - -		- -	- -	- -	1,423 13 11
Hired smiths - - -		- -	- -	- -	133 9 -
TOTAL Iron - - -		2,240 2 26	£.	1,065 13 6	1,557 2 11

Average expense of labour 14 s. per cwt. of iron, exactly 1½ d. per lb.

CHATHAM YARD, 6th July 1843.

WORKS at the SMITHERY, from the 1st January to the 31st March 1843, by Day Work.

Iron Expended.				Total Quantity Expended.							Balance.	
Converted from		Loss of Iron in Manufacturing Work.										
Old Wrought.	Total Quantity.	New Iron.	Old Iron.	Boltstave.	Square.	Flat.	Plate.	Old Wrought.	Total Quantity.	New Iron.	Old Iron.	
<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	
- -	25 3 19	3 0 27	- -	- -	20 2 14	8 2 4	- -	- -	29 0 18	—	—	
0 0 7	3 1 18	0 0 19	0 0 2	1 2 2	0 2 7	1 2 2	- -	0 0 8	3 2 10	—	—	
- -	13 0 27	1 2 17	- -	- -	9 2 6	5 1 10	- -	- -	14 3 10	—	—	
15 1 12	36 1 8	4 1 4	1 3 18	14 0 14	6 0 20	3 1 14	- -	17 0 20	40 2 13	—	—	
- -	6 3 14	1 1 15	- -	3 2 3	3 2 0	1 1 8	- -	- -	8 1 11	—	—	
- -	14 2 12	2 0 26	- -	4 3 7	2 1 10	9 2 21	- -	- -	16 3 10	—	—	
0 2 7	3 0 0	0 2 6	0 0 8	2 3 27	- -	- -	- -	0 2 15	3 2 14	—	—	
48 0 6	878 1 19	80 3 15	6 0 0	174 3 14	14 0 7	539 0 0	183 1 8	54 0 6	965 1 6	—	—	
2 0 22	60 3 12	7 1 9	0 1 3	9 2 7	56 1 20	- -	- -	2 1 25	68 1 24	—	—	
2 0 0	6 1 5	0 2 4	0 1 0	- -	4 3 9	- -	- -	2 1 0	7 0 9	—	—	
46 2 8	427 1 22	47 2 12	5 3 8	72 2 7	208 3 24	146 3 23	- -	52 1 16	480 3 14	—	—	
2 3 23	89 1 1	10 2 22	0 1 13	71 1 21	11 1 0	14 1 7	- -	3 1 8	100 1 18	—	—	
1 2 17	4 2 13	0 1 14	0 0 23	- -	3 1 0	- -	- -	1 3 12	5 0 22	—	—	
- -	19 1 18	2 1 20	- -	17 0 20	4 2 18	- -	- -	- -	21 3 10	—	—	
9 1 26	58 1 1	5 3 11	1 0 21	48 0 10	1 2 25	4 3 7	- -	10 2 19	65 1 5	—	—	
28 2 12	212 3 25	23 0 6	3 2 8	14 0 7	7 0 4	186 1 8	- -	32 0 20	239 2 4	—	—	
30 2 19	150 1 17	14 3 24	4 1 9	29 1 0	79 0 1	26 1 21	- -	35 0 0	169 2 22	—	—	
- -	- -	- -	- -	463 2 27	434 0 9	947 2 3	183 1 8	212 0 9	2,240 2 27	*72 0 13	104 1 24	

* The balance in *italic* is the excess of new iron expended above the quantity of new iron drawn from store.

Note—
Knees average 4½ cwt., drawn in 1 day by tilt hammer.
" " 1½ " " " the hand.
Chain Plates 4½ " " " tilt hammer.
" " 1 cwt. 21 lbs. " hand.

EXPENSE of Working the STEAM ENGINE to TILT HAMMER for Three Months.

Species.	Quantity.	Rate.	Value.
	<i>Tons. cwt. qrs. lbs.</i>	<i>£. s. d.</i>	<i>£. s. d.</i>
Coals - - - - -	22 5 0 0	- 15 11 per ton	18 2 2
Oil, Salad - - - - -	6½ gallons - -	- 5 - per gal.	1 12 6
	<i>Cwt. qrs. lbs.</i>		
Tallow - - - - -	1 1 16	2 6 8 per cwt.	3 18 -
Oakum, spunyarn, &c. - -	- - -	- - -	1 10 -
Engiue keeper - - - -	13 weeks at - -	1 4 6 per week	15 18 6
		TOTAL - - £.	41 1 2

CHATHAM YARD, 6 July 1843. - - - - -

SHIP OR SERVICE, - - - - -

DAILY ACCOUNT of Stores Demanded, Work

Date.	Uses.	Species.	Quantity.		Rate.	Value.
			Number.	Weight.		
1845:				<i>cwt. qrs. lbs.</i>		<i>£. s. d.</i>
1 July - -	Knees, hanging - - -	Flats, new - - -	- - -	2 0 0	- - -	- - -
" - -	" " - - -	Square, new - - -	- - -	1 2 0	- - -	- - -
2 July - -	Bolts, ring - - -	Boltstave - - -	- - -	0 3 14	- - -	- - -
" - -	" common - - -	" - - -	- - -	1 0 0	- - -	- - -
" - -	Plates - - -	Flats - - -	- - -	0 3 0	- - -	- - -
" - -	" - - -	Old, wrought - - -	- - -	1 0 0	- - -	- - -

A COMPARATIVE STATEMENT of Works performed by TILT HAMMER, and by

Knees drawn in Three Months by the Tilt Hammer.

	Quantity.	Rate.	Value.	TOTAL Expense.
	<i>Tons. cwt. qrs. lbs.</i>	<i>£. s. d.</i>	<i>£. s. d.</i>	
Knees drawn from old iron, average $4\frac{1}{2}$ cwt. per day, with an addition of $\frac{1}{4}$ for loss.	20 14 1 14	2 10 - per ton.	51 15 11	Materials 109 l. 9 s. 11 d.
Coals, 69 tons, coked $3\frac{1}{2}$ tons -	72 10 0 0	- 15 11 "	57 14 -	
Labour, one man - - -	78 days	- 6 6 per day.	25 7 -	Labour 78 l.
" " - - -	78 "	- 4 6 "	17 11 -	
" two men - - -	156 "	- 3 6 "	27 6 -	
Allowance for beer, four men -	312 "	- - 6 "	7 16 -	
TOTAL - - - £.				187 9 11

Chain Plates drawn in Three Months by Tilt Hammer.

	Quantity.	Rate.	Value.	TOTAL Expense.
	<i>Tons. cwt. qrs. lbs.</i>	<i>£. s. d.</i>	<i>£. s. d.</i>	
Chain plates drawn from old iron, average $4\frac{1}{2}$ cwt. per day, with an addition of $\frac{1}{4}$ th for loss.	21 18 3 0	2 10 - per ton.	54 16 10	Materials 112 l. 10 s. 10 d.
Coals, 69 tons, coked $3\frac{1}{2}$ tons -	72 10 0 0	- 15 11 "	57 14 -	
Labour, one man - - -	78 days.	- 6 6 per day.	25 7 -	Labour 78 l.
" one man - - -	78 "	- 4 6 "	17 11 -	
" two men - - -	156 "	- 3 6 "	27 6 -	
Allowance for beer, four men -	312 "	- - 6 "	7 16 -	
TOTAL - - - £.				190 10 10

CHATHAM YARD, 6 July 1843.

HER MAJESTY'S SHIP "CASTOR."

Performed, and Iron Expended at the Smithery.

Date.	Articles.	Number.	Boltstave.	Square.	Flat.	Plate.	Old, Wrought.	Net Weight of Work Performed.	Articles, new, Wrought.	Iron added to new, Wrought.	Total Quantity of Iron Expended, including Loss.
1845 :			<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>
1 July -	Bolts, common	50	1 2 0	- - -	- - -	- - -	- - -	1 2 0	- - -	- - -	1 2 21
" -	" "	40	- - -	0 3 0	- - -	- - -	- - -	0 3 0	- - -	- - -	0 3 11
" -	Plates - -	6	- - -	- - -	0 1 0	- - -	- - -	0 1 0	- - -	- - -	0 1 4
2 July -	Stanchions -	4	- - -	- - -	- - -	- - -	- - -	- - -	0 3 0	0 0 12	0 0 12
" -	Knees, hanging	4	- - -	0 3 14	1 2 0	- - -	- - -	2 1 14	- - -	- - -	2 2 20
-	-	-	-	-	-	-	-	-	-	-	-

the HAND for Three Months or 78 Working Days on Knees and Chain Plates.

Knees Drawn in Three Months by the Hand.

	Quantity.	Rate.	Value.	TOTAL Expense.
	<i>Tons cwt. qrs. lbs.</i>	<i>£. s. d.</i>	<i>£. s. d.</i>	
Knees drawn from new bar iron, average $4\frac{1}{2}$ cwt. per day, with an addition of $\frac{1}{8}$ th for loss.	18 12 3 21	9 - - per ton.	167 15 4	Materials 213 l. 8 s. 6 d.
Coals, average $3\frac{1}{2}$ cwt. to 1 cwt. of iron.	58 0 0 0	- 15 11 "	46 3 2	
Labour, one man - - -	265 days.	- 4 - per day.	53 - -	Labour 205 l. 7 s. 6 d.
" three men - - -	765 "	- 3 6 "	139 2 6	
Allowance for beer, four men -	1,060 "	- - 3 "	13 5 -	
			TOTAL - - - £.	419 6 0

Chain Plates Drawn in Three Months by the Hand.

	Quantity.	Rate.	Value.	TOTAL Expense.
	<i>Tons cwt. qrs. lbs.</i>	<i>£. s. d.</i>	<i>£. s. d.</i>	
Chain plates drawn from new bar iron, average $4\frac{1}{2}$ cwt. per day, with an addition of $\frac{1}{8}$ th for loss.	19 14 3 14	9 - - per ton.	177 3 11	Materials 230 l. 4 s. 5 d.
Coals, average $3\frac{3}{4}$ cwt. to 1 cwt. of iron.	60 0 0 0	- 15 11 "	52 10 6	
Labour, one man - - -	294 days.	- 4 - per day.	58 16 -	Labour 228 l. 8 s. 3 d.
" three men - - -	885 "	- 3 6 "	154 17 6	
Allowance for beer, four men -	1,179 "	- - 3 "	14 14 9	
			TOTAL - - - £.	458 12 8

HER MAJESTY'S SHIP "CASTOR."

ABSTRACT of the TOTAL AMOUNT and EXPENSE of the STORES issued for and expended in Works performed at the Smithery for Her Majesty's Ship "Castor."

STORES DRAWN.

U S E S.	Species.	Quantity.		Rate.	Value.
		Number.	Weight.		
			<i>Tons cwt. qrs. lbs.</i>	<i>£.</i>	<i>£. s. d.</i>
Knees - - -	Iron flats - - -	- - -	3 15 3 20	9 per ton.	—
Ditto - - -	Square - - -	- - -	2 12 1 0	9 „	—
Ditto - - -	Old wrought - - -	- - -	0 18 3 22	9 „	—
Bolts - - -	Boltstave - - -	—	—	—	—
Ditto - - -	Square - - -	—	—	—	—
Ditto - - -	Old wrought - - -	—	—	—	—

WORK PERFORMED.

HER MAJESTY'S SHIP "CASTOR."

ARTICLES.	Number.	Species of Iron.				Total Weight.	Iron, New, Wrought.	Iron, added to New, Wrought.	Total Weight of Iron including Loss.	Rate.	Value.
		Boltstave.	Square.	Flat.	Old Wrought.						
			<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>	<i>Cwt. qrs. lbs.</i>			<i>Cwt. qrs. lbs.</i>	<i>£. s. d.</i>	<i>£. s. d.</i>
Knees, forked - -	-	-	130 2 0	50 2 10	10 0 0	191 0 10	-	-	214 3 25	9 - -	—
Knees, hanging -	-	-	20 0 0	11 2 0	- -	31 2 0	-	-	—	—	—
Bolts - - -	-	-	—	—	—	—	-	-	—	—	—

EXPERIMENTS ON LINKS OF CHAIN AS END LINKS.

Appendix.

		Diameter, Inches.	Average Breaking Weight.	REMARKS.
			<i>Tons.</i>	
Iron	- - Annealed (Bailey, Pegg, & Co.)	$1\frac{1}{2}$	59.1	Six experiments; was slightly heated at time of fracture.
"	- - As commonly manufactured	$1\frac{1}{2}$	53.2	
"	- - When planished (lightly)	$1\frac{1}{2}$	56.0	
"	- - Annealed	$1\frac{1}{4}$	43.0	Six experiments.
"	- - Planished	$1\frac{1}{4}$	31.0	
"	- - As commonly manufactured	$1\frac{1}{4}$	38.5	
"	- - Annealed	1	31.7	
"	- - Planished	1	22.0	
"	- - Commonly manufactured	1	30.0	
"	- - Heated, and shut with charcoal	$1\frac{1}{2}$	55.75	
"	- - Half Welsh coal and charcoal	$1\frac{1}{2}$	35.5	
"	- - Heated and shut with charcoal	$1\frac{1}{4}$	52.25	
"	- - Heated and shut with half Welsh coal and charcoal.	$1\frac{1}{2}$	41.25	
"	- - Heated with charcoal	$1\frac{1}{2}$	61.25	
"	- - Heated with charcoal	1	22.25	
"	- - As commonly manufactured	$1\frac{3}{4}$	77.5	
"	- - Ditto - - ditto - -	2 in. full.	100.25	
"	- - Ditto - - ditto - -	$2\frac{1}{2}$,, bare.	122.2	
"	- - Ditto - - ditto - -	$2\frac{1}{2}$,, full.	149.5	Tried to; not broken.

Appendix.

EXPERIMENTS on the STRENGTH of IRON ; TRANSVERSE STRAIN.

Diameter.	Length between the Supports.		Broke at Tons.	R E M A R K S.
Inches.	Inches.			
2	9	Planished - - - - -	95	
2	9	Shut with decayed mortar as a flux	35	With short scarph.
2	9	Shut with lime as a flux - - -	49	Slightly heated when broke.
2	9	Shut without any flux - - -	29	} Broke at shut, very slightly heated.
2	9	Shut with sand as a flux - - -	46	
2	9	Bolts, as common - - - - -	83	
2	9	Bolts, annealed - - - - -	92·5	Bent 3·5 nearly.

N.B.—The above experiments were of iron from Messrs. Johnson and Newton.

IN the direction of their Length.

Diameter.	Length.		Tons.	R E M A R K S.
Inches.	Inches.			In.
2	22	Cold Hammered - - - } Broke at {	55	} Reduced at fracture to - - - { $1\frac{11}{12}$. $1\frac{1}{10}$.
2	22	Annealed - - - - - }	69½	
1½	26½	Cold Hammered - - - } Broke short {	29	} Reduced at fracture to $1\frac{3}{16}$ in.
1½	26½	Annealed - - - - - }	43½	
1	26	Cold Hammered - - - } Broke at {	17½	} Slightly reduced at fracture.
1	26	Annealed - - - - - }	18½	
				} Reduced at fracture to $\frac{3}{4}$ in.

Dear Sir,

Bolton, 5 September 1845.

Appendix.

WE forward you for the use of Colonel Elorza the following statement of the mode of carrying on the manufacture of malleable iron direct from the ore, as well as a calculation of the economy of the process.

The process was patented by Mr. William Neale Clay about three years ago, and consists in working the ore in a pulverised state, mixed with charcoal, coke, coal, or other carbonaceous matter, also pulverised in a puddling furnace. The patent includes the process of making iron from the ore and carbonaceous matter only, as well as in combination with portions of pig iron. Mr. Clay had a previous patent for making the iron by deoxidising the ore in iron retorts, but that being found expensive has not come into operation, and is only now named to guard against any impression that the two patents are identical.

The principle of Mr. Clay's invention is this, the ore being an oxide of iron (very pure), the addition of carbonaceous matter was made, that the carbon combining with the oxygen of the ore might leave the iron free; and to facilitate the decomposition the mineral and carbonaceous matter were pulverised and mixed intimately together before being introduced into the furnace.

The principal advantage of adding a portion of the cast iron with the ore, consists in its enabling the workman to produce a larger quantity of puddled iron in a given time, than he can if using ore and carbonaceous matter only; but this advantage disappears when pig iron is expensive and the ore cheap; and we think a better quality of iron is procurable from the ore alone, than from the mixture of ore and pig or refined metal.

We do not approve of the use of refined metal with ore at all, and when pig iron is used we prefer it to be of the No. 2 quality rather than one less fusible, as a more intimate union with the iron from the ore with the pig iron is effected when the iron is sufficiently carbonated to meet and boil in the furnace, than when a white or oxygenated pig iron is used. It is not, however, desirable that the iron should be too fusible; because, independently of the injury thereby done to the furnace, the labour of the workmen in "bringing it round," as well as the time occupied, is considerably increased, and the yield of puddled iron diminished. In this respect experience must guide the operator, as different results follow the use of varieties in the pig iron. It is desirable also to know, if possible, the description of the ironstone chiefly used in the manufacture of the pig iron employed with the ore, and also to learn by accurate analysis the composition of the iron ore. If the ore be rich in iron, and pure from deleterious matter, and the carbonaceous matter be free from sulphur, the iron made from the ore alone will be of first rate quality.

If on experiment the iron thus made be of the quality called "red short" (that is very tough when cold, but very brittle at a particular red heat), or "cold short" (which is just the reverse), you will be anxious to know whence the cause arises. To ascertain this the following plan may be pursued:—Take a quantity (say 200 lbs.) of the thin roll scale which flies off the merchant bars when being rolled (which is nearly a pure oxide of iron), and adding the relative proportion of carbonaceous matter, work the mixture in the puddling furnace. If this yield, or the result, prove "red short," it is a strong reason for believing that your carbonaceous matter contains sulphur. If it be tough and good, you may conclude that the red shortness of the previous mixture springs from the presence of sulphur in the ore, or an excess of lime. If on the other hand the first mixture were cold short, and this experiment leads to the belief that the cause of the evil is with the ore, it will probably arise from an excess of siliceous matter in the composition of the ore. In either of these cases we have applied a successful remedy for which we obtained a patent. It is this:—To mix with the ore and coke a portion of pulverised clay or argillaceous ironstone, increasing also the proportion of coke about four or five per cent. Hence will be seen the desirableness of knowing the prevailing quality of ironstone from which the pig iron you use is made; because as the ore will in all probability contain some per-centage both of siliceous matter and lime, the use of a pig iron made from argillaceous ironstone will tend to neutralise their effects on the puddled iron.

With 480 lbs. argillaceous pig iron,
 „ 90 „ ore,
 „ 30 „ coke,

a very excellent quality of iron, hot and cold.

With 480 lbs. calcareous pig iron,
 „ 90 „ ore,
 „ 30 „ coke,

red short.

With 300 lbs. ore,
 „ 300 „ argillaceous pig iron,
 „ 100 „ coke,

a good quality of iron, but not quite uniform and subject to red shortness, while the addition of 15 lbs. of clay will entirely correct that.

With 600 lbs. ore,
 „ 200 „ coke,

it is very desirable to add clay, as, unless the ore be very good, the iron will be red short.

Appendix.

If the evil be caused by sulphur in the ore, we should not recommend the process, as the affinity of the sulphur for the iron will not be overcome to give satisfactory results.

The proportion of clay to be used will depend upon the ore, but will be easily ascertained, five per cent. in weight of the ore being generally enough with Ulverstone ore. If too much clay be added, the ball, when under the hammer, will emit continued showers of dull red sparks, and the cinder, when tapped, will flow very sluggishly. If too little be used the iron will be "red short"; the less clay you use (consistently with producing the result) the better, because there will thus be less tendency to work it with the iron when balling up.

Let us now proceed to the operation—

With 300 lbs. of pig iron,	
„ 300 „ pulverised ore,	
„ 100 „ coke,	
„ 15 „ clay,	

The ore, coke, and clay, mixed together, are put into the furnace and spread over the bottom; turn it over quietly with the tool, so as to expose it all to the fire for about 40 minutes (the fire being kept hot), when it will become glutinous, and aggregate in small lumps; then introduce the pig iron, and let it melt as quickly as possible, the furnace being closed till the iron begins to fall; then work the mixture well together, and ball up in the usual way; it will very soon "come round" after the pig is melted. If all mineral and no pig be used, the same course will be followed; but the mixture should be repeatedly stirred to get the whole exposed to the heat.

This operation (assuming 600 lbs. of ore to be worked) will require $2\frac{1}{4}$ hours.

The cost of puddled bars will vary, of course, with the mixture used; but we will add an average or two from our works, observing that in forming his estimate Colonel Elorza must be guided by his own experience and information as to the results he can obtain, because, as we do not work our furnaces during the night, our expenses of coal per ton of iron are much higher than some works, where more and inferior iron is made. We quote, it will be seen, a ton of puddled bars per furnace per day or "turn," whilst a puddler in six heats makes 22 cwt. long weight; but, taking one day with another, breakdowns, repairs, &c., a ton per day is a full average with us.

Cost.

First we consume 35 cwt. of coal per day (and keeping up at night) per furnace.

This at 7 s. per ton is	12 s. 3 d. per day.
Puddlers - -	10 s. 6 d. per ton.
Shinglers - -	2 s. - d. „

Then, No. 1.						£.	s.	d.
360 tons of pig iron at 4 l. 10 s.	-	-	-	-	-	1,620	-	-
120 „ refined „ 4 l. 15 s.	-	-	-	-	-	570	-	-
6 heats, 2,610	-	-	-	-	Result, 435 tons	2,190	-	-
Puddled Bars -	-	-	-	-	-	5	-	8
This is quite a full average with us, and not 450, as stated by Mr. R. to Colonel Elorza in error.								
Add Puddlers, &c. -	-	-	-	-	-	1	5	6
						£.	6	6 2

No. 2.						£.	s.	d.
480 tons, pig	-	-	-	-	at 4 10 -	2,160	-	-
90 „ ore	-	-	-	-	„ 1 -	90	-	-
30 „ coke	-	-	-	-	„ - 10 -	15	-	-
6 heats per day, 2,760	-	-	-	-	Yield, 460 tons	2,265	-	-
Cost per ton -	-	-	-	-	-	4	18	6
Add coal, puddlers, &c. -	-	-	-	-	-	1	5	6
						£.	6	4 -

No. 3.	£.	s.	d.	£.	s.	d.
300 tons, pig - - - - - at 4 10 -	1,350	-	-			
300 „ ore - - - - - „ 1 - -	300	-	-			
100 „ coke - - - - - „ - 10 -	50	-	-			
15 „ clay - - - - - „ - 3 -	2	5	-			
6 heats per day, 2,520 - - - - - Result, 420 tons)	1,702	5	-			
Cost per ton - - - - -	4	1	6			
Add one day's coal - - - - -	-	12	3			
Puddling, shingling, labour, &c. - - - - -	-	13	3			
	£.	5	7	-		

No. 4.	£.	s.	d.	£.	s.	d.
600 tons, ore - - - - - at 1 - -	600	-	-			
200 „ coke - - - - - „ - 10 -	100	-	-			
30 „ clay - - - - - „ - 3 -	4	10	-			
5 heats per day, 1,200 - - - - - Result, 240 tons)	704	10	-			
Cost per ton - - - - -	2	18	8			
Puddler, 1 l. per ton - - - - -	1	-	-			
Add two days' coal - - - - -	1	4	6			
Shingler and labourer, as before - - - - -	-	3	3			
	£.	5	6	5		

These relative results will be strikingly changed if pig iron rise in price or the ore be procurable more cheaply.

Assuming iron to be 5 l. 10 s. then—

	£.	s.	d.
No. 1 would be - - - - -	7	8	3
„ 2 „ - - - - -	7	4	9
„ 3 „ - - - - -	6	1	-
„ 4, as before - - - - -	5	6	5

Or, assuming pig iron to remain as at present, 4 l. 10 s. per ton, and ore to be 10 s. per ton, then—

	£.	s.	d.
No. 1 would be - - - - -	6	6	2
„ 2 „ - - - - -	6	2	-
„ 3 „ - - - - -	4	19	4
„ 4 „ - - - - -	4	1	6

Or assume pig iron to rise to 5 l. 10 s., and ore to be procurable (as Colonel Elorza can obtain it) at 10 s. per ton, then—

	£.	s.	d.
No. 1 would be - - - - -	7	8	3
„ 2 „ - - - - -	7	4	10
„ 3 „ - - - - -	5	13	8
„ 4 „ - - - - -	4	1	6

We have not added any items for wear and tear, interest, &c., because these vary according to circumstances, and do not affect the question.

In looking at the cost as above, the difference in the make or produce per furnace per day has to be taken into account, and to those where ore is used the patent right has to be added. It will be seen that an increase or reduction in the cost of the carbonaceous matter does not influence the price materially, though of course it has the most influence where the greatest proportion to the whole mixture is used, as in No. 3.

Our terms for patent right are 2 s. 6 d. per ton of puddled bars for each patent, or, if both be taken, 4 s. per ton; but in agreeing for the right abroad, we have stipulated for a payment down on making the arrangement, and we think Colonel Elorza should obtain the patent in our names at his expense, and pay us 500 l. sterling as a pre-payment for the first 2,500 or 4,000 tons he may make, taking one or both patents as the case may be.

We should expect the guarantee of some approved English house for the due render of accounts and payment of patent right, and on these terms being agreed to, we shall do all in our power to procure and send him two men fully qualified to superintend the process, he paying their expenses, salaries, &c., &c.

John Hick, Esq.

We are, &c.
(signed) *Rushton and Eckersley.*

Appendix.

Bolton Iron Works, Bolton,
7 February 1846.

Dear Sir,

WE have forwarded a box addressed to you as Secretary of the Metals Committee at Somerset House, containing in middle compartment a small quantity hematite ore from Ulverstone, such as we use in making iron direct from the ore. The black looking small ore, in the largest of the two side divisions, is the same ore, having been almost entirely deoxidized in retorts by a mixture with carbon, and subjected to heat without the admission of air during the operation; but we did not find sufficient advantage in the process to induce us to adopt that mode of proceeding.

The larger lumps in the small side compartment are, we believe, Spanish ore, but they were sent us by a gentleman to be worked on our plan, and we produced nearly as good results from it as from the hematite. There was, however, a deal of trouble in reducing it to so small a size as it is desirable for our operation. In fact, the operation is most efficiently conducted with the hematite ore, when it and the carbon and clay are ground together to a powder. To show the advantage of procuring so intimate a mixture of the compound parts as the grinding to a powder effects, we have inclosed in the box, and under the large lumps of ore, a piece of a bar which was made as follows:—

150 lbs. of ore,
45 „ of coke,
5 „ of clay,

were ground together to powder, the mixture was thrown into a puddling furnace and allowed to lie there 20 minutes. It was then turned over and worked, and in 40 minutes from the time when it was introduced, it was drawn from the furnace, taken under the hammer, and at that heat hammered into the state in which you have it, so that from the time when it was in the state of ore and coke introduced into the furnace, to the period when it presented the appearance of a finished hammered bar, only 45 minutes elapsed.

It will at all times give us the greatest pleasure to hear from you, and if we can, in any respect, be of service to you in your duties, you may command our best endeavours.

Jerh. Owen, Esq.

Yours, &c.
(signed) *Rushton and Echersley.*

CORRESPONDENCE between the BOARD OF PUBLIC WORKS in *Dublin*, and *Dr. Davy*, on the subject of the Protection of the Iron Work of the Mooring Buoys in Kingstown Harbour from the effects of Corrosion.

Royal Dublin Society,
5 July 1834.

Sir,

I HAD the honour of receiving your letter of the 4th instant, addressed to me by direction of the Commissioners of Kingstown Harbour, informing me that the buoys of that harbour have undergone a rapid and injurious chemical change, and that they are desirous of ascertaining the cause of such change, and the best mode of prevention without removing the copper if possible.

I am also favoured with a sketch and description of the buoys, together with a letter from Mr. Loane, the master of the buoys in Portsmouth Harbour, where the buoys in use are precisely similar to those in Kingstown Harbour.

I beg you will acquaint the Commissioners that I shall immediately give the subject my best consideration, and I propose on Monday next to examine the buoys, with the view of determining the nature and extent of the corrosion, and (if possible) to point out some simple remedy.

H. R. Paine, Esq.

I have, &c.
(signed) *Edmd. Davy.*Royal Dublin Society's Laboratory,
30 July 1834.

Sir,

I HAVE the honour to acquaint you, for the information of the Commissioners of Kingstown Harbour, that in conformity with my communication to you of the 5th instant, I examined one of the buoys at Kingstown on the 8th instant. I found the iron work much corroded or oxidated, whilst the copper which covers nearly the whole surface of the buoy, and the lead which coats about three inches of its lower extremity, were scarcely affected.

As I considered it necessary to submit a portion of the corroded or oxidated surface of the iron work to a chemical examination, Mr. M'Mahon and the harbour master kindly afforded me every facility for that purpose, and the gentlemen having directed my attention to a piece of chain cable which had been immersed in sea water for about eight years and was much less corroded than the iron work of the buoys which had been down only about six months, it appeared to me that some comparative experiments on the two kinds of iron might tend to throw some light on the object I had in view; accordingly I took with me to the laboratory the iron shackle immediately attached to the buoy, and a link of the chain cable, and having made all the experiments on these metals, and on the corroded

corroded or oxidated surface already alluded to, and having given the subject my best consideration, I beg leave (in compliance with the desire of the Commissioners) to give my opinion "As to the cause of the corrosion of the iron work of the buoys, and the best mode of prevention, without removing the copper:"

1st. I think the corrosion of the iron work of the buoys is, I conceive, mainly due to an electrical action which takes place between the iron, lead, and copper, and sea water. The iron, under such circumstances, is rendered positively electrical, and the other metals negatively electrical; in consequence, these metals are preserved at the expense of the iron, which is corroded.

2nd. The best mode of preventing the corrosion of the iron work of the buoys without removing the copper or lead, is, I conceive, to separate the lead two or three inches from the iron shackle at the bottoms of the buoys, as to destroy all communication between the lead and the iron, and to cover the iron work with a good coating of varnish or japan, which will be impervious to sea water; and to protect the copper and lead from corrosion, a surface of iron must be attached to the lead at the bottom of the buoy. A large iron nail of about two or three inches in length, having a stout flat head of about three square inches surface, will, I presume, fully answer the purpose. The iron nail should be driven through the lead into the wood, taking care that it is in close contact with the lead. This nail, from gradual corrosion, will require to be occasionally renewed.

3rd. There are a number of different kinds of varnish and japan that might be applied to the iron work of the buoys. I am doubtful as to the particular one that would best answer the purpose. New experiments, I believe, are wanting on this point, and they might be made at a very trifling expense, and lead to important results.

I beg you will express to the Commissioners my regret that circumstances over which I had no control have prevented me from making you an earlier communication on the subject of the buoys.

I have, &c.
(signed) *Edmund Davy*,
Professor of Chemistry,
Royal Dublin Society.

Royal Dublin Society's Laboratory,
10 November 1834.

Sir,

I BEG you will do me the favour to acquaint the Commissioners of Kingstown Harbour that since the receipt of your letter of the 4th of August, I have, in conformity with their request, directed my best attention to ascertain "The particular description of varnish or japan best calculated to protect the shackles of the buoys from future injury by corrosion or oxidation."

In the course of the last three months I have made a great number of experiments on the subject, using different varnishes and japans, but the results I have obtained are, I regret to say, for the most part, of a negative kind, owing to the action of the sea water, and particularly the constant friction to which the iron work must be exposed.

I have hitherto found no varnish or japan that I can venture to recommend as a means of preventing the corrosion or oxidation of the shackles of the buoys, &c., &c.

I also instituted a number of experiments on the different metals with a view to apply metallic protectors to the shackles, &c. of the buoys, and the results I have obtained, though operating on a small scale, appear to me so satisfactory that I venture respectfully to recommend the trial of the experiments at Kingstown Harbour.

I have found, in conformity with the principle developed by the late Sir Hy. Davy, that when zinc is attached to iron in sea water, the iron is preserved or protected, whilst the zinc is very slowly corroded. I have carried on experiments during several weeks, attaching several pieces of zinc to large pieces of iron, and also to the pieces of chain sent to the laboratory, and I have uniformly found that the iron has lost no weight in sea water, and a portion of the oxidated zinc strongly attached itself to the iron.

The corrosion of iron work chains, &c. in sea water, as is well known, is very rapid; by the application of zinc to iron work so exposed, its corrosion will, I presume, be prevented. Zinc is a metal easily procured, and at a low rate; it may be attached to the iron by different methods; the contact of the two metals is all that is required for the protection of the iron.

Should the Commissioners think proper to direct a trial to be made of the application of zinc as a protector on one of the buoys at Kingstown Harbour, I shall be most happy to assist at or superintend the experiments at any time they may think proper to appoint, and will make a full report to them on the subject with as little delay as possible.

I have, &c.
(signed) *Edmund Davy*.

The Commissioners are very desirous of trying the experiments proposed by Dr. Davy, of the application of zinc to the iron bolts and shackles of the buoys in Kingstown Harbour to prevent the rapid corrosion that has taken place.

appendix.

The Commissioners would prefer such an experiment being made under the direction of Dr. Davy, and they will direct the harbour master to acquaint them when he can have a buoy on shore ready for the purpose. Dr. Davy has, of course, taken into consideration the immediate connection of the copper, which appears to have occasioned the rapid corrosion, and the Commissioners understand his opinion to be that it will relieve it notwithstanding.

(signed) J. T. B.

Royal Dublin Society's Laboratory,
22 December 1834.

Sir,

I HAD the honour of receiving your letters of the 12th and 15th of November, informing me that the Commissioners are very desirous of trying the experiment proposed by me of the application of zinc to the iron bolts and shackles of the buoys at Kingstown Harbour, to prevent the rapid corrosion that has been taking place, and that they would prefer such an experiment being made under my direction.

I now beg leave to acquaint you, for the information of the Commissioners, that I commenced my experiments on one of the buoys at Kingstown Harbour on the 26th of November, and continued them on another buoy on the 19th December in company with the harbour master, who kindly afforded me every assistance in his power. The buoy on which I first operated (being the only one on shore) was unfortunately circumstanced for my experiments, because none of the lead had been removed from its lower surface, and the iron shackles and bolts attached to it were much corroded.

The principal corrosion, however, appeared to have taken place near the lead at the bottom of the buoy, or within a short distance of it. My first experiment was designed to ascertain whether a given weight of the corroded iron work connected with the buoys would, when protected with a sufficient surface of zinc, undergo any further corrosion, or lose any weight in sea water; accordingly the iron shackles, link, nut, and forelocks, immediately close to the buoy, weighing together 57 lbs., had attached to them four small ingots of zinc.

On the 15th of December I examined this experiment. Owing to a strain in the iron shackle, one of the pieces of zinc had been forcibly removed, but the appearance of the iron in the vicinity of the other pieces of zinc was quite different from that of the unprotected iron, and much more free from corrosion than on the 26th November. The recent state of the experiment prevented me from trying if the iron had lost any weight.

On the 19th of December my experiments were made under more favourable circumstances than before; the buoy on which I operated having had a portion of lead removed from its bottom, and the shackles and bolts being made clean. I have also made subsequent experiments with zinc as a protector to iron in sea water, and instituted comparative experiments in the harbour to ascertain the rate of the corrosion of known weights of iron chain when unprotected, and the precise difference of effect when protected; also whether bright surfaces of iron will oxidate or corrode when protected by zinc, but all these experiments have been too recently made to state the result.

I beg leave to state that I have had repeated opportunities during the last week (in company with the harbour master) of examining those buoys, and which, agreeably to my suggestion in July last, had about three inches of lead removed from their bottoms so as to break all connection between the iron shackle and the lead and copper coating of the buoys. Some of the buoys so treated have been down nearly six months, and I have no hesitation in saying, and consider, the alteration a most beneficial one, and connected with the permanency of the iron work. My opinion is founded on comparing these buoys with the buoys from which some of the lead has been removed. In the former, the corrosion of the iron work seems to be very nearly arrested, and the shackles, &c. have become the abode of myriads of marine insects. In the latter, the iron work is strongly corroded, and exhibits no vestige of animation on its surface.

As the buoys at Kingstown Harbour are said to be of similar construction to those now in use at Portsmouth, and the latter, according to Mr. Loane, pilot master, do not exhibit any such corrosion as the former, he has referred the cause of the corrosion to the stillness of the water at Kingstown Harbour allowing the copper to act against the iron in a greater degree than it does at Portsmouth, owing to the greater run of the tide there, which carries off the attractive influence, and it may be assisted by the lead being secured with metal nails.

I have had no opportunity of comparing the buoys at Portsmouth with those at Kingstown, but it appears to me that with very slight difference in construction of the buoys at both places it is possible that a considerable degree of corrosion may take place in the iron work of the buoys at Portsmouth, without being apparent to superficial observation, the loose oxide being carried off by the strength of the tide.

The striking manner in which the corrosion of the iron shackles and bolts has been arrested on the removal of part of the lead from the bottoms of the buoys at Kingstown Harbour, seems to show that the previous rapid corrosion was in consequence of the connection of the iron with the lead and copper covering the surface of the buoys, and that the effect was at first justly referred by me to electricity or electrical action.

I have, &c.
(signed) Edmund Davy.

Royal Dublin Society's Laboratory,
4 October 1836.

Appendix.

Sir,

I BEG leave, in conformity with the request conveyed to me in your letter of the 7th of January 1835, to communicate to you, for the information of the Commissioners of Public Works, the results of some experiments I have for some time been carrying on connected with the iron work of the buoys in Kingstown Harbour, and with the preservation of iron in sea water.

The necessity of submitting my experiments to the test of some length of time, and the hope of being able to accomplish more important objects than I have yet been able to attain, prevented me from making an earlier communication on the subject.

1st. Repeated experiments have convinced me that the corrosion of iron in sea water is due to the oxygen of the air in the water, and that when the air is separated from the water, iron may be kept in it for any length of time. The corrosion of iron in fresh water is due to the same cause as in salt water, namely, to the oxygenous portion of the air.

2nd. Iron appears to corrode more rapidly in sea water the nearer it is to the external atmosphere, and less rapidly the deeper it is immersed in that fluid.

3rd. Zinc appears to protect iron from corrosion in salt water so long as the two metals are kept in contact with each other, but if the contact is broken by the intervention of another substance, the protection of the iron is either impaired or destroyed.

During the last year I inspected the buoys at Kingstown Harbour a number of times, occasionally alone, but more generally in company with the harbour master, who kindly afforded me every facility in his power. I also examined three of the buoys with Mr. Hutcheson last week. The partial removal of the lead from the bottoms of the buoys, and the zinc protectors that were attached to the iron work, have undoubtedly been attended with very favourable results. Hence the previous extraordinary corrosion in the iron work has disappeared, and the ordinary corrosion arrested to a certain extent.

Although zinc does not protect iron from ordinary corrosion in sea water, there is (it must be admitted) a practical difficulty in attaching that metal permanently to such iron work as is connected with the buoys; and though my experiments in the laboratory have been quite successful, those made on the buoys in the harbour have been only partially so, simply from the difficulty of applying the zinc.

There is, however, one case in which it seems to me zinc may be most successfully applied, and to this I would beg leave respectfully to solicit the attention of the board. It is well known that the forelocks attached to the buoys are parts of great importance in reference to the safety of ships at their moorings.

I would beg to recommend that what may be called the head of the forelock should be somewhat enlarged; that a hole should be made in its centre, and a stout zinc ring cast into it. My opinion of the efficacy of this application is founded on an experiment I made 12 months ago last July, when I attached a zinc ring to one of the forelocks, and have both in sea water ever since. There is now no appearance of corrosion on the forelock, but simply a deposition of oxide of zinc.

The experiments are still in operation, and I should be most happy to submit to the inspection of the Board at any time they may think proper to appoint.

I have, &c.
(signed) *Edmund Davy.*

Kingstown Harbour, 1845.

THE mooring buoys were laid down in this harbour about 11 years since, and were sheathed with copper, and, in order to protect the iron shackle and bolt from its action, pieces of zinc were stapled on round the iron work. The copper became attracted, and was altogether removed, and the buoys being subject to being rubbed by the steamers made fast to them, the harbour master deemed it more advisable to have them occasionally coated with pitch, &c., than to re-copper them. It does not appear (from what I can learn, for I was not here then) that the iron was at all affected by the copper, but the zinc was very much reduced.

On examining the buoys now on shore, I could find but two small pieces of zinc remaining, and they apparently portions of what had been one piece, the centre of which was gone, and the ends fastened on by the staples remaining.

I send herewith the pieces of zinc and staple.

(signed) *B. D. Gibbons.*

Appendix.

Portsmouth Yard, 9 January 1846.

AN ACCOUNT of the Total Quantity of Scrap and Old Wrought Iron issued to the Contractors for Re-manufacture during the Five Years ending 31st December last.—
Prepared per Memorandum of this day.

Tons. cwt. qrs. lbs.
1,259 0 3 12

(signed) *J. Watts,*
For Master Shipwright,
Absent on duty.
W. Pennell.

The Admiral Superintendent.

Devonport Yard, 10 January 1846.

AN ACCOUNT of the Total Quantity of Scrap and Old Wrought Iron issued to Contractors for Re-manufacture during the Five Years ending 31st December last, per Admiral Superintendent's Direction of the 9th instant, on a Letter from the Chairman of the Committee on Metals.

										<i>Tons. cwt. qrs.</i>
1841 -	-	-	-	-	-	-	-	-	-	468 18 3
1842 -	-	-	-	-	-	-	-	-	-	292 14 2
1843 -	-	-	-	-	-	-	-	-	-	362 9 1
1844 -	-	-	-	-	-	-	-	-	-	378 14 1
1845 -	-	-	-	-	-	-	-	-	-	249 18 3
TOTAL - - -										1,752 15 2

(signed) *W. Edye,*
W. Stigant.

Admiral Superintendent,
for the Committee on Metals.

Chatham Yard, 9 January 1846.

AN ACCOUNT of the Total Quantity of Scrap and Old Wrought Iron issued to the Contractors for Re-manufacture during the Five Years ending the 31st December 1845, prepared in pursuance of your Minute of this day's date, for the Committee on Metals:

Tons. cwt. qrs. lbs.
421 5 0 0

(signed) *Baldock.*
Y. T. Gottlieb,
For Storekeeper, on Leave.

The Captain Superintendent.

Sir,

Woolwich Yard, 3 February 1846.

As requested by your letter of the 8th ultimo, I have the honour to acquaint you, for the information of the Committee on Metals, that the total quantity of scrap and old wrought iron issued to the contractors for re-manufacture in the five years ending the 31st of December last, was 3,984 tons.

Captain Brandreth, R. E.,
Chairman of the Committee on Metals,
&c. &c. &c.

I have, &c.
(signed) *J. S. Collier.*

Sir,

Sheerness Yard, 16 January 1846.

PURSUANT to the directions contained in your minute of the 9th instant, we beg to send as follows, for the information of the Committee on Metals, the total quantity of old wrought iron which has been issued to the contractors for re-manufacture during the last five years ending the 31st December last:

Total quantity of old wrought iron issued to contractors for re-manufacture, 602 tons.

We remain, &c.
(signed) *J. Atkins.*
James Ward,
For Storekeeper.

Captain Superintendent Arthur, C. B.,
&c. &c. &c.

Sir,

Pembroke Yard, 12 January 1846.

In obedience to your minute of the 10th instant, we beg to state that no scrap and old wrought iron have been issued to the contractors for re-manufacture during the five years ending the 31st December last from this yard.

We are, &c.
(signed) *Edwd. Laws.*
J. Pretious.

Captain Superintendent, Royal Dock Yard.

TABLE showing the PROOF STRAIN brought upon ANCHORS from 100 to 1 Cwt.; the Strain to be applied at One-third the Length of the Arm from the Extremity of the Bill; the Length of the Arm to be measured from the Extremity of the Bill to the Centre of the Crown.

Appendix.

Weight of the Anchor.	Test in Tons.	Weight of the Anchor.	Test in Tons.	Weight of the Anchor.	Test in Tons.	Weight of the Anchor.	Test in Tons.
<i>Cwt.</i>	<i>Tons.</i>	<i>Cwt.</i>	<i>Tons.</i>	<i>Cwt.</i>	<i>Tons.</i>	<i>Cwt.</i>	<i>Tons.</i>
100	67 $\frac{1}{2}$	75	56 $\frac{1}{2}$	50	42 $\frac{3}{8}$	25	24 $\frac{3}{4}$
99	66 $\frac{7}{8}$	74	55 $\frac{3}{4}$	49	41 $\frac{3}{4}$	24	23 $\frac{7}{8}$
98	66 $\frac{1}{2}$	73	55 $\frac{1}{2}$	48	41 $\frac{1}{8}$	23	23 $\frac{1}{8}$
97	66 $\frac{1}{8}$	72	54 $\frac{3}{4}$	47	40 $\frac{1}{2}$	22	22 $\frac{3}{8}$
96	65 $\frac{1}{2}$	71	54 $\frac{1}{2}$	46	39 $\frac{7}{8}$	21	21 $\frac{1}{8}$
95	65 $\frac{5}{8}$	70	53 $\frac{3}{4}$	45	39 $\frac{1}{2}$	20	20 $\frac{3}{4}$
94	65	69	53 $\frac{1}{2}$	44	39 $\frac{1}{8}$	19	19 $\frac{1}{8}$
93	64 $\frac{1}{2}$	68	52 $\frac{3}{8}$	43	37 $\frac{7}{8}$	18	19
92	64	67	52 $\frac{1}{8}$	42	37 $\frac{1}{8}$	17	18 $\frac{1}{4}$
91	63 $\frac{3}{8}$	66	51 $\frac{1}{2}$	41	36 $\frac{1}{2}$	16	17 $\frac{3}{4}$
90	63 $\frac{1}{4}$	65	51	40	35 $\frac{3}{4}$	15	16 $\frac{1}{2}$
89	62 $\frac{3}{4}$	64	50 $\frac{1}{2}$	39	35 $\frac{1}{8}$	14	15 $\frac{3}{8}$
88	62 $\frac{1}{4}$	63	50	38	34 $\frac{1}{2}$	13	14 $\frac{3}{4}$
87	61 $\frac{5}{8}$	62	49 $\frac{1}{2}$	37	33 $\frac{1}{2}$	12	13 $\frac{7}{8}$
86	61 $\frac{1}{2}$	61	48 $\frac{3}{8}$	36	33 $\frac{1}{8}$	11	12 $\frac{7}{8}$
85	61	60	48 $\frac{1}{8}$	35	32 $\frac{3}{8}$	10	12
84	60 $\frac{1}{2}$	59	47 $\frac{3}{4}$	34	31 $\frac{5}{8}$	9	11 $\frac{1}{8}$
83	60	58	47 $\frac{1}{4}$	33	30 $\frac{7}{8}$	8	10 $\frac{1}{8}$
82	59 $\frac{1}{2}$	57	46 $\frac{3}{8}$	32	30 $\frac{1}{8}$	7	9 $\frac{1}{4}$
81	59	56	46	31	29 $\frac{3}{8}$	6	8 $\frac{1}{4}$
80	58 $\frac{1}{2}$	55	45 $\frac{3}{8}$	30	28 $\frac{3}{8}$	5	7 $\frac{3}{8}$
79	58 $\frac{1}{8}$	54	44 $\frac{3}{4}$	29	27 $\frac{7}{8}$	4	6 $\frac{3}{8}$
78	57 $\frac{3}{8}$	53	44 $\frac{1}{4}$	28	27 $\frac{1}{8}$	3	5 $\frac{1}{2}$
77	57 $\frac{1}{4}$	52	43 $\frac{3}{8}$	27	26 $\frac{3}{8}$	2	4 $\frac{1}{8}$
76	56 $\frac{1}{4}$	51	43	26	25 $\frac{3}{8}$	1	3 $\frac{3}{8}$

TABLE showing the Sizes of CHAIN CABLES with the Government authorised Testing Strain for each; also the Testing Proofs published by Three Chain Cable Manufacturers.

Size of Chain Cable.	Government Authorised Strain.	Pow, Fawcus, Flinn, & Co., North Shields.	JohnAbbott&Co., Gateshead Park Works.	Table Published by a Manufacturer in the North of England. See "Cabinet Cyclopædia," Vol. 1.
<i>Inches.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
$\frac{5}{16}$	-	3 $\frac{1}{4}$	3 $\frac{1}{4}$	1
$\frac{3}{8}$	-	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2
$\frac{7}{16}$	3 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3
$\frac{1}{2}$	4 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	4
$\frac{9}{16}$	5 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	5
$\frac{5}{8}$	7	6	6	6
$\frac{11}{16}$	8 $\frac{1}{2}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	8
$\frac{3}{4}$	10 $\frac{1}{8}$	9	9	9 $\frac{1}{4}$
$\frac{13}{16}$	-	11	11	11 $\frac{1}{4}$
$\frac{7}{8}$	13 $\frac{3}{4}$	13	13	13
$\frac{15}{16}$	-	15	15	15
1	18	17	17	18
$1\frac{1}{16}$	-	19	19	21 $\frac{1}{2}$
$1\frac{1}{8}$	22 $\frac{3}{4}$	21 $\frac{1}{2}$	21 $\frac{1}{2}$	21 $\frac{1}{2}$
$1\frac{3}{16}$	-	24	24	27
$1\frac{1}{4}$	28 $\frac{1}{2}$	27	27	30 $\frac{1}{2}$
$1\frac{5}{16}$	-	30	30	33
$1\frac{3}{8}$	34	33	32	36
$1\frac{7}{16}$	40 $\frac{1}{2}$	40	40	43
$1\frac{1}{2}$	-	36	36	39 $\frac{1}{2}$
$1\frac{9}{16}$	47 $\frac{1}{2}$	48	48	50 $\frac{1}{2}$
$1\frac{5}{8}$	55 $\frac{3}{8}$	56	56	59 $\frac{1}{2}$
$1\frac{7}{8}$	63 $\frac{1}{4}$	64	64	67 $\frac{1}{2}$
2	72	72	72	77
$2\frac{1}{8}$	81 $\frac{1}{4}$	—	—	—
$2\frac{1}{4}$	91 $\frac{1}{8}$	—	—	—

Appendix.

PRICES PAID FOR CHAIN CABLES.

Sir,

Trinity House, 19 December 1845.
By desire of the Deputy Master, I send you the annexed statement of the contract prices paid for chain cables supplied for the service of this Corporation, and

Have the honour to be, &c.
(signed) J. Herbert.

Captain Brandreth, R. E.

Contract Prices paid for Chain Cables.

	£.	s.	d.	
$\frac{3}{8}$ and under $\frac{1}{2}$ inch -	-	1	16	- per cwt.
$\frac{1}{2}$ " $\frac{5}{8}$ " -	-	1	6	- "
$\frac{3}{4}$ " $\frac{7}{8}$ " -	-	1	5	- "
$\frac{7}{8}$ " $\frac{15}{16}$ " -	-	1	2	6 "
1 inch and above -	-	-	19	- "

By recent arrangements, which have been made with the contractors in consequence of the advanced prices of iron, the above prices are now subject to an additional charge of 4 s. 6 d. per cwt. of the material.

The Undermentioned are the latest Contract Prices of Chain Cables for the Navy.

SIZES.	27 per Cent. off these Prices, per Cwt.	Or Deducting the 27 per Cent., Prices, are per Cwt.
	£. s. d.	£. s. d.
$2\frac{1}{8}$, 2, $1\frac{7}{8}$, $1\frac{3}{4}$, $1\frac{5}{8}$, $1\frac{1}{2}$, and $1\frac{3}{8}$ -	1 1 6	- 13 6
$1\frac{1}{4}$ and $1\frac{1}{8}$ -	1 2 6	- 14 2
1 -	1 3 -	- 14 6
$\frac{7}{8}$ -	1 3 6	- 14 9
$\frac{3}{4}$ -	1 5 1	- 15 9
$\frac{11}{16}$ -	1 6 1	- 16 4
$\frac{9}{16}$ -	1 8 2	- 17 8
$\frac{7}{16}$ -	1 11 3	- 19 8
$\frac{5}{16}$ -	1 11 9	1 - -
$\frac{7}{16}$ -	1 13 9	1 1 3

At present, in consequence of the increased price of iron, 4 l. 10 s. per ton are to be added to the above prices.

A TABLE showing the Sizes of HEMPEN and CHAIN CABLES to be issued with ANCHORS.

Weight of Anchors.	Sizes of Hempen Cables.	Sizes of Chain Cables.	Weight of Anchors.	Sizes of Hempen Cables.	Sizes of Chain Cables.
Cwt.	Inches.	Inches.	Cwt.	Inches.	Inches.
100 to 96	25	$2\frac{1}{4}$	21 to 20	$13\frac{1}{2}$	$1\frac{1}{4}$
95 " 92	$24\frac{1}{2}$		19 " 18	13	
91 " 88	24		17 " 16	$12\frac{1}{2}$	
87 " 83	$23\frac{1}{2}$		15 " 14	12	
82 " 79	23	$2\frac{1}{8}$	13	$11\frac{1}{2}$	$1\frac{1}{8}$
78 " 75	$22\frac{1}{2}$		12	11	
74 " 71	22		11 " 10	$10\frac{1}{2}$	
70 " 67	$21\frac{1}{2}$		9	10	
66 " 63	21	2	8	$9\frac{1}{2}$	1
62 " 59	$20\frac{1}{2}$		7	9	
58 " 56	20		6	$8\frac{1}{2}$	
55 " 52	$19\frac{1}{2}$		$5\frac{1}{2}$	8	
51 " 49	19	$1\frac{3}{4}$	5	$7\frac{1}{2}$	$\frac{3}{4}$
48 " 46	$18\frac{1}{2}$		4	7	
45 " 43	18		3	$6\frac{1}{2}$	
42 " 40	$17\frac{1}{2}$		$2\frac{1}{2}$	6	
39 " 37	17	$1\frac{5}{8}$	2	$5\frac{1}{2}$	$\frac{5}{8}$
36 " 35	$16\frac{1}{2}$		$1\frac{1}{2}$	5	
34 " 32	16		1	$4\frac{1}{2}$	
31 " 29	$15\frac{1}{2}$				
28 " 27	15	$1\frac{3}{8}$			$\frac{1}{2}$
26 " 25	$14\frac{1}{2}$				
24 " 22	14				

PORTSMOUTH YARD, 30th August 1845.

AN ACCOUNT of CHAIN CABLES and their Gear Rejected after Examination and Proof at the Testing House, from the Commencement to the present Time.—Prepared per Memorandum 31st July 1845.

Date of Testing.	Size of Cable.	Description of the Article.	Distin- guishing Number.	Date of Manu- facture.	Name of Contractor.	Proof Strain in Tons.	Breaking Strain in Tons.	REMARKS.
1844 :	Inches.					Tons.	Tons.	
9 Jan. -	1½	12½ tons chain cable - -	122	1843	Hawks & Co.	28½	28½	One end link slightly cracked.
" " -	1½	" " " - -	122	"	" "	28½	28½	One end link slightly cracked.
5 Feb. -	2¼	" " " - -	128	"	" "	91½	119½	Tested the second time for experiment.
7 Mar. -	1½	" " " - -	112	"	Brown & Co.	22¾	20½	Broke the end link.
11 " -	1½	Shackle connecting to anchor	112	"	" "	22¾	22¾	Scarp opened a little on one side.
20 " -	2¼	12½ fathoms chain cable -	126	1844	" "	91½	91½	One end link slightly cracked.
23 " -	2¼	" " " - -	125	"	" "	91½	91½	One end link broke.
13 April -	2¼	Chain splicing tail - -	-	"	" "	91½	91½	Broke triangular link.
24 " -	2¼	Swivel mooring - - -	182	"	Hawks & Co.	91½	91½	Cracked one of the rings, 7⁄8 across inside.
25 " -	1½	12 fathoms chain cable -	158	"	Abbott & Co.	28½	28½	One end link slightly cracked.
26 " -	1½	" " " - -	161	"	" "	28½	28½	Several links under the given diameter.
26 " -	2¼	Swivel mooring - - -	-	"	Brown & Co.	91½	84½	One shut defective, which broke the ring.
7 May -	2¼	Shackle connecting to anchor	151	"	" "	91½	91½	Slightly cracked in two places.
8 " -	2½	12 fathoms chain cable -	166	"	" "	91½	91½	End link slightly cracked.
8 " -	2½	Shackle connecting to anchor	166	"	" "	91½	91½	Slightly cracked in two places.
9 " -	2¼	" " " - -	165	"	" "	91½	91½	Slightly cracked in two places.
21 June -	2¼	12½ fathoms chain cable -	190	"	Hawks & Co.	91½	91½	Slightly cracked in one link over stay pin.
5 Sept. -	2¼	Chain splicing tail - -	-	"	Brown & Co.	91½	85½	Broke the triangular link; it was a ¼ inch small.
1845 :								
6 Feb. -	2¼	12½ fathoms chain cable -	207	"	" "	91½	91½	Two links slightly cracked.
10 " -	2¼	" " " - -	209	"	" "	91½	91½	One link slightly cracked.
19 " -	2¼	Swivel mooring - - -	182	"	Hawks & Co.	91½	89½	Broke one of the rings (repaired at smithery).
21 April -	2¼	12 fathoms chain cable -	207	"	Brown & Co.	91½	91½	One link slightly cracked.
5 May -	1¾	" " " - -	251	1845	Hawks & Co.	34	34	One link cracked; required heavy blow to break it; (repaired at smithery).
" " -	1¾	" " " - -	251	"	" "	34	34	One link not sound.
17 June -	2¼	" " " - -	125	1844	Brown & Co.	91½	86½	Opened the shut in one of the end links.
24 July -	2¼	Shackle splicing - - -	6	1845	" "	91½	91½	Cracked in two places.

Admiral Superintendent, for Committee on Metals. For Woolwich Account see page 88.

We beg to remark that by far the greater number of end links have been broken or otherwise injured by their not having been formed of proper dimensions in the clear, so as to take freely the bolt of the large shackle which connects the chain to the anchor.

Number of Chain Lengths which have been Tested.

Sizes of Chain Cables, &c.											
2¼	2	1¾	1½	1⅝	1½	1⅝	1½	1⅝	1	7⁄8	¾
No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
460	26	22	86	40	24	74	325	125	24	56	92

Memorandum.—Not any anchors have been rejected on examination and proof at the testing house.

(signed) J. Fincham.
J. Watts.
Wm. Rice.

TESTING HOUSE, HER MAJESTY'S DOCKYARD, PORTSMOUTH.

FORMS OF ACCOUNTS proposed to be kept at the TESTING HOUSES of the DOCKYARDS.

ACCOUNT of Articles Tested, &c.

Date of Testing.	Temperature of Testing House.	Size of Chain Cable.	Description of the Article.	Distinguishing Number.	Date of Manufacture.	Contractor's Name.	Proof Strain in Tons.	Breaking Strain in Tons.	Greatest Elongation while under Proof.	Permanent Elongation of each Length of Chain Cable.	Signing Officer's Initials.	REMARKS.

ACCOUNT of Anchors Tested.

Date of Testing.	Temperature of Testing House.	Weight of Anchor.	Description of the Article.	Distinguishing Number.	Date of Manufacture.	Contractor's Name.	Proof Strain in Tons.	Greatest Variation of Angle.		Permanent Variation of Angle of Anchor.		Signing Officer's Initials.	REMARKS.
								1st Arm.	2nd Arm.	1st Arm.	2nd Arm.		
		<i>T. c. q. lbs.</i>											

TESTING HOUSE, PORTSMOUTH YARD, January 1846.

TABLE showing the Average Utmost Stretch of CHAIN CABLES of each Size, during the Testing, and the Average Extent of Stretch at which they finally rested.

Size of Chain Cable.	Number of		Average Utmost Stretch at Testing Strain.	Average Final Stretch.	The Number of Lengths of Chain taken to form the Average.
	Fathoms.	Links.			
<i>Inches.</i>			<i>Inches.</i>	<i>Inches.</i>	<i>Number.</i>
2½	12½	99	2·996	1·635	96
1¾	12½	126	1·886	·531	32
1½	12½	149	1·8796	·7328	40
1⅝	12½	161	1·6487	·6137	72
1¼	12½	176	1·786	·7274	72
1⅓	12½	206	1·637	·554	30
1	12½	222	1·413	·383	29
¾	12½	262	1·543	·4765	40
¾	12½	295	1·73	·519	32

AN ACCOUNT of EXPERIMENTS made in the TESTING HOUSE at WOOLWICH, with a View to ascertain the Strength of a Chain Cable as compared with that of the Iron of which it is Composed.

From $1\frac{3}{4}$ in. diameter.

S. C. Round Iron.						Links from S. C. Iron.					
No. 1 broke at	-	-	-	-	Tons.	No. 1 broke at	-	-	-	-	Tons.
" 2 "	-	-	-	-	47 $\frac{1}{4}$	" 2 "	-	-	-	-	93 $\frac{3}{4}$
" 3 "	-	-	-	-	47 $\frac{3}{4}$	" 3 "	-	-	-	-	87 $\frac{1}{2}$
" 4 "	-	-	-	-	47 $\frac{1}{2}$	" 4 "	-	-	-	-	83
" 5 "	-	-	-	-	46 $\frac{3}{4}$	" 5 "	-	-	-	-	94
" 6 "	-	-	-	-	48 $\frac{1}{2}$	" 6 "	-	-	-	-	84 $\frac{3}{4}$
" 7 "	-	-	-	-	48	" 7 "	-	-	-	-	85 $\frac{3}{4}$
" 8 "	-	-	-	-	49	" 8 "	-	-	-	-	86 $\frac{1}{4}$
" 9 "	-	-	-	-	46	" 9 "	-	-	-	-	87 $\frac{1}{4}$
" 10 "	-	-	-	-	51 $\frac{1}{2}$						94
" 11 "	-	-	-	-	48 $\frac{1}{2}$						
					11)528 $\frac{1}{2}$						9)796 $\frac{1}{2}$
Mean	-	-	-	-	48	Mean	-	-	-	-	88 $\frac{1}{2}$

Remanufactured Round Iron.						Links from remanufactured Iron.					
No. 1 broke at	-	-	-	-	Tons.	No. 1 broke at	-	-	-	-	Tons.
" 2 "	-	-	-	-	48 $\frac{1}{2}$	" 2 "	-	-	-	-	90 $\frac{1}{2}$
" 3 "	-	-	-	-	48 $\frac{1}{2}$	" 3 "	-	-	-	-	89 $\frac{1}{2}$
" 4 "	-	-	-	-	49 $\frac{3}{4}$	" 4 "	-	-	-	-	89
" 5 "	-	-	-	-	47	" 5 "	-	-	-	-	89
" 6 "	-	-	-	-	46	" 6 "	-	-	-	-	71 $\frac{3}{4}$
" 7 "	-	-	-	-	48 $\frac{3}{4}$	" 7 "	-	-	-	-	82 $\frac{1}{2}$
" 8 "	-	-	-	-	48 $\frac{1}{2}$	" 8 "	-	-	-	-	82 $\frac{1}{2}$
" 9 "	-	-	-	-	49 $\frac{3}{4}$	" 9 "	-	-	-	-	83 $\frac{1}{2}$
" 10 "	-	-	-	-	49						
" 11 "	-	-	-	-	46						
" 12 "	-	-	-	-	47						
					12)577 $\frac{1}{2}$						6)507 $\frac{1}{2}$
Mean	-	-	-	-	48 $\frac{1}{12}$	Mean	-	-	-	-	84 $\frac{1}{2}$

From $1\frac{3}{4}$ in. diameter.

Bailey, Pegg, & Co.'s Round Iron.						Links from Bailey, Pegg, & Co.'s Iron.					
No. 1 broke at	-	-	-	-	Tons.	No. 1 broke at	-	-	-	-	Tons.
" 2 "	-	-	-	-	45	" 2 "	-	-	-	-	85
" 3 "	-	-	-	-	44 $\frac{1}{2}$						
" 4 "	-	-	-	-	45 $\frac{3}{4}$						
					47 $\frac{1}{2}$						
					4)182 $\frac{3}{4}$						
Mean	-	-	-	-	45 $\frac{1}{2}$						

GENERAL RESULT of the $1\frac{3}{4}$ in. Iron.

Round Iron.						Links.					
S. C.	-	-	-	-	Tons.	S. C.	-	-	-	-	Tons.
Remanufactured	-	-	-	-	48 $\frac{1}{12}$	Remanufactured	-	-	-	-	28 $\frac{1}{2}$
Bailey, Pegg, & Co.	-	-	-	-	45 $\frac{1}{2}$	Bailey, Pegg, & Co.	-	-	-	-	85
					3)141 $\frac{1}{2}$						3)258
Mean	-	-	-	-	47	Mean	-	-	-	-	86

Appendix.

Iron 1 inch diameter.

Remanufactured Round Iron.						Links from Remanufactured Iron.						
No. 1 broke at	-	-	-	-	Tons. 18	No. 1 broke at	-	-	-	-	Tons. 34½	
„ 2	„	-	-	-	-	17½	„ 2	„	-	-	-	33½
„ 3	„	-	-	-	-	18¾	„ 3	„	-	-	-	37½
„ 4	„	-	-	-	-	17½	„ 4	„	-	-	-	33½
„ 5	„	-	-	-	-	17	„ 5	„	-	-	-	32½
„ 6	„	-	-	-	-	17½						
„ 7	„	-	-	-	-	19						5)171
„ 8	„	-	-	-	-	19						
„ 9	„	-	-	-	-	19½						
						9)163						

It appears from all the foregoing experiments that the strength of the chain cable is something less than double that of the iron of which it is composed.

EXPERIMENTS made at the Testing House at Woolwich in May 1843, to ascertain the effect of Annealing upon the Strength of the Chain Cable.

The cables were those of Hawks, Crawshay, & Co., made in 1842.

10 lengths of 2 feet each, 7⁄8 in. diameter, were annealed and then broken.

The maximum breaking strain was - - - - - 20½ tons.
The minimum breaking strain was - - - - - 19 „
Mean of the 10 was - - - 19·65 „

10 lengths of unannealed, 2 feet each, 7⁄8 in. diameter.

The maximum breaking strain was - - - - - 21¾ tons.
The minimum breaking strain was - - - - - 20½ „
Average of the 10 was - - - 21·1 „

TESTING HOUSE, PORTSMOUTH YARD, 28 January 1846.

AN ACCOUNT of Experiments made to ascertain how the Strength of CHAIN CABLES is affected by Testing them.

N.B.—In each case a length (12½ fathoms) was broken in the Testing Machine, and afterwards the parts of it were again and again broken to show the effects of the preceding strain.

Number of Times each was Broken.	Size of Cable.	Date when Received.	Maker's Names.	Various Strains applied before Breaking.	Breaking Strain.	Greatest Stretch before Breaking.	REMARKS.
	<i>Inches.</i>			<i>Tons.</i>	<i>Tons.</i>	<i>Ft. in.</i>	
1	2½	1826	Hawks&Co.	81, 25	- -	- -	Stood the required strain; no appearance of fracture.
2	"	"	ditto -	- -	100, 75	3 6	Broke the end link into three pieces.
3	"	"	ditto -	100, 75	- -	- -	One link cracked over stay-pin (but the link has never broken).
4	"	"	ditto -	109, 25	- -	- -	The above crack showed rather more.
5	"	"	ditto -	- -	109, 75	- -	Broke one link, showing the scarph.
6	"	"	ditto -	- -	108	- -	Broke one link into three pieces.
7	"	"	ditto -	- -	110	- -	Broke one link, showing the scarph.
2nd Chain							
1	"	"	ditto -	81, 25	- -	- -	No appearance of fracture.
2	"	"	ditto -	85	- -	- -	
3	"	"	ditto -	90	- -	- -	
4	"	"	ditto -	97	- -	- -	
5	"	"	ditto -	100, 125	- -	- -	
6	"	"	ditto -	105, 375	- -	- -	Stopped screw; plug leaked; no fracture. Broke one link, showing scarph. No fracture, but obliged to leave it until the next day. Broke one link; solid iron. Broke one link, showing scarph. Broke one link into three pieces.
7	"	"	ditto -	110, 75	- -	- -	
8	"	"	ditto -	110, 375	- -	- -	
9	"	"	ditto -	- -	115, 125	6 1	
10	"	"	ditto -	118, 25	- -	- -	
11	"	"	ditto -	- -	122	- -	
12	"	"	ditto -	- -	123	- -	
13	"	"	ditto -	- -	122, 625	- -	
1	1¾	1828	Brunton	55, 125	72, 25	5 11½	Broke one link, showing scarph.
2	"	"	ditto -	- -	79, 875	5 11½	
3	"	"	ditto -	- -	80, 5	5 11½	Pulled asunder one link at one end.
4	"	"	ditto -	- -	82, 5	5 11½	
5	"	"	ditto -	- -	83, 375	5 11½	
6	"	"	ditto -	- -	83, 625	5 11½	
2nd Chain							
1	"	"	ditto -	69, 5	- -	4 5½	Men exhausted.
2	"	"	ditto -	74, 5	- -	- -	Piston rode home; no fracture; cut off 5 ft. 8 in.; enlarged the bight of link with two thimbles; took out stay-pin, and put in a shorter one.
3	"	"	ditto -	- -	77, 75	7 2	Broke one link; solid iron.
4	"	"	ditto -	- -	78, 25	7 5	
5	"	"	ditto -	- -	74, 75	7 6	Pulled one link in two both ends. Broke one link; solid iron. Pulled one link in two both ends.
6	"	"	ditto -	- -	82	- -	
7	"	"	ditto -	- -	82, 5	- -	
8	"	"	ditto -	- -	83, 625	- -	
1	1	Unknown	ditto -	21, 25	- -	2 6	Stopped a few minutes.
2	"	"	ditto -	- -	21, 75	0 2	Broke one link at a defective shut.
3	"	"	ditto -	- -	23, 25	0 4	
4	"	"	ditto -	- -	23, 25	0 5	One link pulled quite through at one end.
5	"	"	ditto -	- -	23, 25	0 7	
6	"	"	ditto -	- -	23, 75	0 10	One link gave out at a defective shut.
7	"	"	ditto -	- -	23, 75	0 5	
8	"	"	ditto -	- -	25, 5	0 8	
9	"	"	ditto -	- -	26, 375	0 9	
2nd Chain					Final - -	6 8	
1	"	"	ditto -	- -	15, 5	- -	Broke the eye part of swivel, the fractured part being ¼ inch under the present required dimensions.
2	"	"	ditto -	- -	24, 25	5 6	Broke one link at defective scarph; broke another "stay pin" out of this link, which has not been broken, but is set home on the two connected with it.
3	"	"	ditto -	- -	24, 75	0 9	
4	"	"	ditto -	- -	25, 625	0 5	Pulled one link apart at one end.
5	"	"	ditto -	- -	26	0 7	
6	"	"	ditto -	- -	26	0 5	
7	"	"	ditto -	- -	26, 75	0 2	
2nd Chain					Final - -	7 10	
1	2¼	1843	Hawks&Co.	91, 125	- -	- -	No defect could be discovered.
2	"	"	ditto -	- -	119, 5	- -	Broke one link. See "Tables of the Weights of Anchors," &c., p. 3, May 1845.
3	"	"	ditto -	91, 125	- -	- -	No defect could be discovered.
4	"	"	ditto -	91, 125	- -	- -	
5	"	"	ditto -	119, 5	- -	- -	
6	"	"	ditto -	120, 5	- -	- -	
7	"	"	ditto -	123, 25	- -	- -	
8	"	"	ditto -	126, 625	- -	- -	No defect could be discovered.
9	"	"	ditto -	- -	123, 125	- -	Bolt of swivel broke.
10	"	"	ditto -	127, 5	- -	- -	No defect could be discovered.
11	"	"	ditto -	134, 25	- -	- -	Men exhausted.
12	"	"	ditto -	- -	133	- -	Split one stay-pin in two, and broke the link in which it was inserted across the middle.

WOOLWICH YARD, 19th February 1846.

AN ACCOUNT of CHAIN CABLES and their GEAR found Defective after Examination and Proof at the Testing House, from the commencement to the present time.—Prepared per Memorandum, 31st July 1845.

Date of Testing.	Size of Cable.	Description of the Article.	Distinguishing Number.	Name of Contractor.	Proof Strain in Tons.	Breaking Strain in Tons.	REMARKS.
1835: 23 August -	Inches. 1½	12½ fathoms chain cable -	23	Gordon & Co., contract, 1831.	40½	40½	One link cracked at the crown.
1839: 30 Sept. -	2⅜	Ditto - - - -	172	- ditto -	81½	81½	One link cracked.
6 Dec. -	2⅜	Ditto - - - -	165	- ditto -	81½	81	One link broke at crown.
10 Dec. -	2⅜	Ditto - - - -	183	- ditto -	81½	79	One link broke in shut.
1840: 1 Jan. -	2⅜	Ditto - - - -	199	- ditto -	81½	80½	One link broke at crown.
22 April -	1½	Anchor shackle -	188	- ditto -	55½	-	Eyes imperfect.
25 May -	1½	12½ fathoms chain cable -	211	- ditto -	28½	28	One link broke in shut.
15 Dec. -	2⅜	Ditto - - - -	225	- ditto -	81½	80	One link broke in both sides.
19 Dec. -	2⅜	Ditto - - - -	224	- ditto -	81½	72	One link broke at crown.
"	2⅜	Ditto - - - -	-	-	-	79	Ditto - - ditto.
1841: 1 Jan. -	2½	Ditto - - - -	223	- ditto -	81½	80	One link broke both sides.
5 May -	¾	Ditto - - - -	- none -	- ditto -	10½	9½	One link broke in shut.
				ditto -	-	10	Ditto - - ditto.
				ditto -	-	10	Ditto - - ditto.
22 Oct. -	1½	Ditto - - - -	261	- ditto -	28½	28½	Ditto - - ditto.
18 Nov. -	1½	Ditto - - - -	- none -	- ditto -	8½	8½	One link broke.
						7½	Ditto.
1842: 28 March -	2⅜	Ditto - - - -	278	- ditto -	81½	-	One link defective before testing.
6 April -	2	Ditto - - - -	302	- ditto -	72	71	One link broke in crown.
7 May -	2⅜	Ditto - - - -	273	- ditto -	81½	81½	One link opened at shut.
10 June -	2⅜	Ditto - - - -	298	- ditto -	10½	10½	One link broke at crown.
17 June -	2⅜	Ditto - - - -	273	- ditto -	81½	81½	One link opened at shut.
23 August -	2	Ditto - - - -	40	- ditto -	72	72	One link broke.
6 Sept. -	1½	Ditto - - - -	286	- ditto -	63½	63	Ditto.
1844: 12 August -	1⅝	Ditto - - - -	62	- ditto -	34	32	One link broke in shut.
"	-	Ditto - - - -	-	- ditto -	-	33	Ditto - - ditto.
27 June -	1½	Ditto - - - -	157	- ditto -	40½	37	Ditto - - ditto.
1835: 15 Sept. -	1⅝	Ditto - - - -	- none -	Abbot & Co. -	22½	22½	Ditto - - ditto.
1839: 15 Oct. -	1⅝	One cable, six lengths -	179	- ditto -	47½	-	The cable rejected, because the links were too small in diameter of the iron.
16 Oct. -	1⅝	Ditto - - - -	180	- ditto -	-	-	
14 Nov. -	2⅜	Ditto - - - -	181	- ditto -	-	-	
1840: 26 Feb. -	1½	Ditto - - - -	193	- ditto -	-	-	The cable rejected, having two swivels only instead of three.
13 March -	1⅝	12½ fathoms chain cable -	209	- ditto -	22½	22½	One link broke in shut.
14 March -	1½	Ditto - - - -	203	- ditto -	28½	28½	One swivel cracked at side. Four cables rejected, because the links were too small in the diameter of the iron.
3 Nov. -	2⅜	Ditto - - - -	244	- ditto -	81½	80	One link broke in shut.
1841: 1 Feb. -	2⅜	Ditto - - - -	273	- ditto -	81½	81	Ditto - - ditto.
"	2⅜	Ditto - - - -	272	- ditto -	81½	79	One link broke at crown.
8 March -	2⅜	Ditto - - - -	276	- ditto -	-	75	Ditto - - ditto.
15 March -	2⅜	Ditto - - - -	275	- ditto -	-	78	One link broke at shut.
23 March -	2⅜	Ditto - - - -	279	- ditto -	-	81½	One link cracked.
29 June -	2⅜	Ditto - - - -	293	- ditto -	-	78	One link broke at shut.
30 June -	2⅜	Ditto - - - -	294	- ditto -	-	80½	One link broke at crown.
1 Oct. -	2⅜	Ditto - - - -	304	- ditto -	-	69	One swivel broke.
"	2⅜	Ditto - - - -	-	- ditto -	-	81½	One link broke.
14 Oct. -	1½	Ditto - - - -	305	- ditto -	63½	60	End link broke.
22 Dec. -	2⅜	Ditto - - - -	312	- ditto -	81½	78	One link broke at shut.
				ditto	-	80	Ditto - - ditto.
1842: 22 July -	1⅝	Ditto - - - -	80	Abbot & Co., contract, February 1842.	34	33	One link broke at crown.
1844: 29 June -	1	Ditto - - - -	236	Abbot & Co., contract, 1831.	18	17	Ditto - - ditto.
1840: 24 March -	2⅜	Ditto - - - -	234	Tyzack & Co., contract, 1831.	81½	75	One link broke at shut.
26 Sept. -	1⅝	Ditto - - - -	20	- ditto -	34	34	One link cracked.
28 Sept. -	-	Ditto - - - -	7	- ditto -	-	31	One link broke.
2 Nov. -	2⅜	Ditto - - - -	249	- ditto -	81½	81½	One swivel cracked.
14 Dec. -	-	Ditto - - - -	252	- ditto -	-	79	One link broke at crown.
1841: 15 Feb. -	-	Ditto - - - -	256	- ditto -	-	81½	One link opened at shut.
19 March -	-	Ditto - - - -	260	- ditto -	-	70	One link broke at crown.
5 April -	-	Ditto - - - -	266	- ditto -	-	76	One link broke.
13 July -	-	Ditto - - - -	279	- ditto -	-	-	One end link opened at shut.
20 July -	-	One cable six lengths -	277	- ditto -	-	-	Rejected; 12 links indented at the ends, and two links were ½ inch too small.

Date of Testing.	Size of Cable.	Description of the Article.	Distin- guishing Number.	Name of Contractor.	Proof Strain in Tons.	Breaking Strain in Tons.	R E M A R K S.
1842 :	<i>Inches.</i>						
27 Jan. -	1 $\frac{1}{4}$	12 $\frac{1}{2}$ fathoms chain cable -	313	Tyzack & Co., contract, 1831.	28 $\frac{1}{2}$	28 $\frac{1}{2}$	One link broke in shut.
22 April -	1 $\frac{3}{8}$	Ditto - - - -	330	- ditto -	34	33 $\frac{3}{4}$	Ditto - - ditto.
2 May -	2	Ditto - - - -	332	- ditto -	72	69	One end link broke in shut.
25 June -	1 $\frac{7}{8}$	Ditto - - - -	10	Hawks & Co., contract, 1842.	63 $\frac{1}{2}$	59	One link broke at crown.
28 July -	2 $\frac{1}{8}$	Ditto - - - -	14	- ditto -	81 $\frac{1}{2}$	81 $\frac{1}{2}$	One swivel broke in the eye.
29 July -	1 $\frac{7}{8}$	Ditto - - - -	6	- ditto -	63 $\frac{1}{2}$	59	End link broke in shut.
6 August -	-	Ditto - - - -	18	- ditto -	-	63 $\frac{1}{2}$	End link opened at shut.
11 Oct. -	1	Ditto - - - -	25	- ditto -	18	17 $\frac{1}{2}$	One link broke at shut.
1843 :							
30 Dec. -	2 $\frac{1}{4}$	Ditto - - - -	80	Brown, Lennox & Co., contract, 1842.	91 $\frac{1}{2}$	89	One link broke at crown.
" -	2 $\frac{1}{4}$	Ditto - - - -	80	- ditto -	91 $\frac{1}{2}$	89	Ditto - - ditto.
" -	-	Ditto - - - -	-	- ditto -	-	87	Ditto - - ditto.
" -	-	Ditto - - - -	-	- ditto -	-	88	Ditto - - ditto.
1844 :							
18 Jan. -	-	Ditto - - - -	90	- ditto -	-	90	Ditto - - ditto.
" -	-	Ditto - - - -	-	- ditto -	-	87	Ditto - - ditto.
26 March -	-	Ditto - - - -	-	- ditto -	91 $\frac{1}{2}$	87	Ditto - - ditto.
1845 :							
14 Nov. -	1 $\frac{1}{2}$	Ditto - - - -	246	- ditto -	47 $\frac{1}{2}$	47	Ditto - - ditto.
" -	-	Ditto - - - -	-	- ditto -	-	47	Ditto - - ditto.
" -	-	Ditto - - - -	-	- ditto -	-	47 $\frac{1}{2}$	Ditto - - ditto.
12 Dec. -	1 $\frac{7}{8}$	Ditto - - - -	253	- ditto -	63 $\frac{1}{2}$	61	Ditto - - ditto.
" -	-	Ditto - - - -	-	- ditto -	-	62	Ditto - - ditto.
" -	-	Ditto - - - -	-	- ditto -	-	63	Ditto - - ditto.
1835 :							
22 Sept. -	$\frac{7}{8}$	Ditto - - - -	27	Brunton & Co., old construction.	13 $\frac{3}{4}$	13	Three links broke in shut.
1836 :							
3 Feb. -	1	Ditto - - - -	20	- ditto -	18	{ 11 $\frac{1}{2}$ 13 $\frac{1}{2}$ 5 $\frac{1}{2}$ 4 $\frac{3}{4}$ }	Two links broke at crown.
25 Feb. -	$\frac{5}{8}$	Ditto - - - -	- none -	- ditto -	7	{ 24 27 28 14 16 17 17 $\frac{3}{4}$ 16 }	Two links broke in shut.
1840 :							
30 Jan. -	1 $\frac{1}{2}$	Ditto - - - -	-	- ditto -	28 $\frac{1}{2}$	{ 24 27 28 14 16 17 17 $\frac{3}{4}$ 16 }	Three links broke in shut.
4 April -	1	Ditto - - - -	56	- ditto -	18	{ 16 17 17 $\frac{3}{4}$ 16 }	Ditto - - ditto.
1 June -	1	Ditto - - - -	- none -	- ditto -	-	{ 16 16 60 22 $\frac{1}{2}$ }	Two links broke in shut.
8 July -	1 $\frac{7}{8}$	Ditto - - - -	-	- ditto -	63 $\frac{1}{2}$	60	One link broke, and several cracked.
10 Dec. -	1 $\frac{1}{8}$	Ditto - - - -	-	- ditto -	22 $\frac{1}{2}$	18	One link broke in shut.
1841 :							
31 March -	$\frac{7}{8}$	Ditto - - - -	-	- ditto -	13 $\frac{3}{4}$	{ 9 13 $\frac{1}{2}$ 11 10 $\frac{1}{2}$ }	Four links broke in shut.
" -	-	Ditto - - - -	-	- ditto -	-	{ 12 $\frac{1}{2}$, 11 $\frac{1}{2}$ 13 $\frac{1}{2}$, 12 $\frac{1}{2}$ }	Ditto - - ditto.
13 April -	1	Ditto - - - -	-	- ditto -	18	{ 16, 17 15 $\frac{1}{2}$, 15 20, 22 }	Two links broke at crown.
15 April -	1 $\frac{1}{8}$	Ditto - - - -	13	- ditto -	22 $\frac{3}{4}$	{ 15 $\frac{1}{2}$, 15 20, 22 }	Two links broke at shut.
30 April -	$\frac{5}{8}$	Ditto - - - -	- none -	- ditto -	7	{ 4 $\frac{3}{4}$, 4 $\frac{3}{4}$ 5, 5 5 $\frac{1}{2}$, 6 }	Ditto - - ditto.
16 June -	1	Ditto - - - -	-	- ditto -	18	{ 10 to 16 $\frac{1}{2}$ 17 6 }	Six links broke at shut.
10 Sept. -	1	Ditto - - - -	15	- ditto -	-	17	Eight links broke at shut.
18 August -	$\frac{5}{8}$	12 fathoms chain cable	199	- ditto -	7	6	One link broke at side.
20 August -	2	Ditto - - - -	14	- ditto -	72	72	One link broke at shut.
1842 :							
30 August -	1 $\frac{3}{8}$	Ditto - - - -	- none -	- ditto -	34	26, 27, 29	One link broke at crown.
2 Sept. -	1	Ditto - - - -	27	- ditto -	18	18	Three links broke at shut.
1844 :							
20 June -	2	Ditto - - - -	14	- ditto -	72	72	One link defective; shut opened.
1835 :							
19 Sept. -	1 $\frac{3}{8}$	Ditto - - - -	11	Hawks & Co., old construction.	34	27	One link broke.
1836 :							
18 Nov. -	1 $\frac{1}{8}$	Ditto - - - -	- none -	- ditto -	22 $\frac{3}{4}$	22 $\frac{3}{4}$, 20	One link broke at shut.
1840 :							
29 April -	1 $\frac{1}{2}$	Ditto - - - -	61	- ditto -	28 $\frac{1}{2}$	28 $\frac{1}{2}$	Four links broke at crown.
14 Oct. -	$\frac{5}{8}$	Ditto - - - -	14	- ditto -	7	6 $\frac{1}{2}$ and 7	One link broke at shut.
1841 :							
25 March -	$\frac{7}{8}$	Ditto - - - -	- none -	- ditto -	13 $\frac{3}{4}$	10 $\frac{1}{4}$ to 13 $\frac{3}{4}$	One link broke at crown.
13 April -	1	Ditto - - - -	16	- ditto -	18	16	Three links cracked.
14 April -	1 $\frac{1}{8}$	Ditto - - - -	52	- ditto -	22 $\frac{3}{4}$	22 $\frac{3}{4}$	One link broke at end.
11 Oct. -	1 $\frac{1}{4}$	Ditto - - - -	19	- ditto -	28 $\frac{1}{2}$	27	One link broke at crown.
9 Nov. -	1	Ditto - - - -	57	- ditto -	18	16	One link broke at crown.
1842 :							
19 August -	$\frac{5}{8}$	Ditto - - - -	5	- ditto -	7	6 $\frac{1}{2}$	One link broke at shut.
25 August -	1 $\frac{3}{4}$	Ditto - - - -	26	- ditto -	55 $\frac{1}{8}$	51	Ditto - - ditto.
1844 :							
7 August -	1 $\frac{3}{4}$	Ditto - - - -	91	- ditto -	-	49	Ditto - - ditto.
1835 :							
21 Sept. -	1 $\frac{3}{8}$	Ditto - - - -	- none -	Brown & Co., old construction.	34	29	Ditto - - ditto.

Date of Testing.	Size of Cable.	Description of the Article.	Distin- guishing Number.	Name of Contractor.	Proof Strain in Tons.	Breaking Strain in Tons.	R E M A R K S.
1835 : 29 Oct.	Inches. $\frac{7}{8}$	12 fathoms chain cable -	98	Brown & Co., old construc- tion.	19 $\frac{3}{4}$	12	One link broke at crown.
3 Feb.	1	Ditto - - - -	20	- ditto -	18	11 $\frac{1}{2}$, 13 $\frac{1}{2}$	Two links broke at crown, very much worn.
1836 : 13 Feb.	$\frac{17}{8}$	Ditto - - - -	28	- ditto -	63 $\frac{1}{2}$	60	One link broke at shut.
8 March	1	Ditto - - - -	44	- ditto -	18	18	One link cracked at crown, some links only $\frac{7}{8}$ -inch.
11 May	$1\frac{5}{8}$	Ditto - - - -	22	- ditto -	47 $\frac{1}{2}$	44	One link broke at shut.
12 May	-	Ditto - - - -	20	- ditto -	-	33	One link broke at crown.
30 Sept.	$1\frac{3}{4}$	Ditto - - - -	50	- ditto -	55 $\frac{1}{8}$	55 $\frac{1}{8}$, 47	Two links broke at shut.
3 Oct.	-	Ditto - - - -	-	- ditto -	-	52	One link broke at crown.
1839 : 27 Jan.	$1\frac{5}{8}$	Ditto - - - -	52	- ditto -	47 $\frac{1}{2}$	47, 40	Two links broke at crown.
1840 : 1 Feb.	$\frac{7}{8}$	Ditto - - - -	- none -	- ditto -	13 $\frac{3}{4}$	12	One link broke at end.
"	-	Ditto - - - -	-	- ditto -	7	5 $\frac{1}{2}$	Ditto - - ditto.
2 April	$1\frac{3}{4}$	Ditto - - - -	- none -	- ditto -	28 $\frac{1}{2}$	21	One link broke at end, very much worn.
"	1	Ditto - - - -	76	- ditto -	18	15 to 17 $\frac{1}{4}$	Four links broke at crown.
6 April	$1\frac{5}{8}$	Ditto - - - -	- none -	- ditto -	34	30	One link broke and three cracked, much worn.
28 April	$1\frac{1}{4}$	Ditto - - - -	-	- ditto -	28 $\frac{1}{2}$	25	One swivel broke.
22 May	$\frac{3}{4}$	Ditto - - - -	29	- ditto -	10 $\frac{1}{2}$	9	One link broke at shut.
27 June	$\frac{3}{4}$	Ditto - - - -	1	- ditto -	10 $\frac{1}{2}$	8 $\frac{1}{2}$, 9	Two links broke at crown, much worn.
4 July	$1\frac{5}{8}$	Ditto - - - -	8	- ditto -	22 $\frac{3}{4}$	22 $\frac{3}{4}$	One link broke, six lengths worn.
6 July	-	Ditto - - - -	- none -	- ditto -	-	21	One link broke at end, worn.
8 August	$\frac{3}{4}$	Ditto - - - -	1	- ditto -	10 $\frac{1}{2}$	10	One link broke at end, much worn.
"	$1\frac{5}{8}$	Ditto - - - -	- none -	- ditto -	22 $\frac{3}{4}$	20, 21	Two links broke at end, much worn.
9 Sept.	$\frac{7}{8}$	Ditto - - - -	-	- ditto -	13 $\frac{3}{4}$	12, 13, 13 $\frac{1}{2}$, 13 $\frac{1}{2}$.	Four links broke at end, much worn.
16 Nov.	$1\frac{1}{8}$	Ditto - - - -	11	- ditto -	22 $\frac{3}{4}$	22 $\frac{3}{4}$	One link broke, and one cracked.
9 Dec.	-	Ditto - - - -	- none -	- ditto -	-	18	One link broke at shut (made in 1824).
1841 : 25 March	$\frac{7}{8}$	Ditto - - - -	-	- ditto -	13 $\frac{3}{4}$	11, 12 $\frac{1}{2}$, 13 $\frac{1}{2}$	Three links broke at end, much worn.
1 April	$1\frac{5}{8}$	Ditto - - - -	8	- ditto -	22 $\frac{3}{4}$	20, 21, 21 $\frac{1}{4}$	Three links broke at end, decayed.
12 April	1	Ditto - - - -	46	- ditto -	18	17 $\frac{1}{2}$	One link broke at end, decayed.
17 April	$\frac{7}{8}$	Ditto - - - -	- none -	- ditto -	13 $\frac{3}{4}$	11 to 13 $\frac{1}{2}$	Seven links broke, variously.
5 May	-	Ditto - - - -	-	- ditto -	-	11, 13, 13 $\frac{1}{2}$	Three links broke at shuts.
4 August	$1\frac{3}{4}$	Ditto - - - -	3	- ditto -	72	72	Two links broke at end.
15 Sept.	1	Ditto - - - -	59	- ditto -	18	16	One link broke at end.
1842 : 26 May	$\frac{7}{8}$	Ditto - - - -	28	- ditto -	13 $\frac{3}{4}$	13 $\frac{3}{4}$	Ditto - - ditto.
9 June	1	Ditto - - - -	- none -	- ditto -	18	18	Two links broke at end.
17 August	2	Ditto - - - -	106	- ditto -	72	69, 70	Two links broke at shut.
19 August	-	Ditto - - - -	-	- ditto -	-	71, 71 $\frac{1}{4}$	Two links broke at end.
26 August	$\frac{3}{4}$	Ditto - - - -	32	- ditto -	10 $\frac{1}{2}$	8, 9 $\frac{1}{2}$	Two links broke at shut.
1844 : 19 June	2	Ditto - - - -	99	- ditto -	72	71 $\frac{1}{2}$	One link broke at shut.
20 June	-	Ditto - - - -	14	- ditto -	-	69, 64	One link broke at end, very much worn.
10 July	$2\frac{1}{8}$	Ditto - - - -	46	- ditto -	81 $\frac{1}{4}$	80	One link broke at crown, very much worn. One link broke at end.

WOOLWICH YARD, 19 February 1846.

AN ACCOUNT of the TOTAL NUMBER of CHAIN CABLES proved at the Testing House, from the commencement to the present date.

CONTRACTORS' NAMES.	Number of Lengths, 12 $\frac{1}{2}$ fathoms each.	Number of Links broken.
Brunton & Co. (old construction) - - - - -	569	53
Hawks & Co. (old construction) - - - - -	398	22
Brown & Co. (old construction) - - - - -	702	67
Gordon & Co. (contract, 1831) - - - - -	1,338	26
Tyzack & Co. (contract, 1831) - - - - -	1,230	12
Abbot & Co. (contracts, 1831 and 1842) - - - - -	2,969	19
Brown, Lennox, & Co. (contract, 1842) - - - - -	1,317	12
Hawks & Co. (contract, 1842) - - - - -	1,448	6

Woolwich Yard, 19 February 1846.

AN ACCOUNT of ANCHORS which have been Broken and Tested for Experiment in the Testing Machine.

Date of Testing.	Distinguishing Number of Anchor.	Weight.	By Whom Made.	Proof Strain in Tons.	Breaking Strain in Tons.	REMARKS.
1835: 12 August -	None - -	<i>Cwt. qrs. lbs.</i> 87 0 0	Woolwich Yard, 1812	61½	70½	Broke in the shank.
14 August -	Ditto -	72 0 0	Portsmouth Yard, 1799.	54½	52½	Broke in the shank and ring.
15 August -	Ditto -	84 0 0	Deptford Yard, 1812	60½	52½	Broke in the ring. Broke also at 7 inches from the throat in the shank at 59 tons. Broke also at 21 inches from the throat at 73½ tons.
17 August -	Ditto -	72 1 0	Unknown; repaired at Chatham Yard in 1814; old construction.	54½	64	Shank broke 10 inches from the throat; and a crack at 20 inches from 73½ tons.
9 September	25	79 3 0	Deptford Yard, 1811	58½	62½	Broke in the shank 9 inches from the throat.
1840: 3 September	None - -	81 3 14	Deptford Yard in 1828	59½	47	Broke short off in the shank 18 inches from the throat; the shank was very much bent at 44 tons.
1842: 18 February	Ditto -	96 3 5	Woolwich Yard, 1826; "Perrings" original plan.	66	68	Broke short off in the shank 2 feet 5½ inches from the throat. Deflected at 60 tons 2½ inches. Deflected at 68 tons 4¾ inches.
1843: 3 January	Ditto -	6 2 0	Unknown (old construction).	8½	8½	Not broken; evidently much distressed at 4 tons. Deflected 1½ inches. The shank much bent at the full strain.
9 April -	Ditto -	15 3 0	Portsmouth Yard, on Mr. Tyler's plan, 1843.	17½	33	Broke in the shank 9 inches from the throat.
9 April -	Ditto -	15 0 14	Chatham Yard, 1843 Sir Wm. Parker's plan.	16½	39½	Broke in the arm 3 inches from the throat, and in the shank 3 inches from the throat.
10 April -	Ditto -	16 0 0	Admiral Sir W. Parker's plan, by Langridge & Co., 1843. Shut in the crown on Mr. Tyler's plan.	17½	37½	First arm broke in the shut in the crown on Mr. Tyler's plan, the workmanship being unsound. Second arm broke short off at the crown with 34 tons, it being partially unsound. The tenon of the shank was at the same time completely broken through. The iron in both appeared to be of excellent quality.
11 April -	Ditto -	15 0 17	Chatham Yard, on Sir Wm. Parker's plan, and shut on Mr. Tyler's plan.	16½	40½	Cracked in several places, and an arm broke short off 6 inches above the palm.
1841: 30 March -	Ditto -	6 1 14	Porter's patent.	8½	20½	Broke in the upper arm 8 inches from centre of pin. Broke in the upper arm 15 inches from centre of pin.
30 March -	Ditto -	6 0 0	Ditto - - -	8½	21½	And in the shank 18 inches from centre of pin.
1842: 22 February	Ditto -	28 0 0	Ditto - - -	27½	60½	Not broken, but a small crack appeared at the top of the palm in the lower arm. The shank bent to 6 inches of curvature.
14 July -	708	61 2 0	Ditto - - -	49½ ₁₀	59½ ₁₀	This anchor was tested to 10 tons over proof, by desire of the "patentee," and at his risk. It received no injury.
15 July -	637	13 2 0	Ditto (Kedge) -	15½ ₁₈	-	The shank was bent at 15 tons ½ of an inch, and examined set, in consequence of bad workmanship.
1843: 11 February	972	9 3 0	Porter's patent -	11½	42	Shank cracked at underside at 36 tons. Broke in the upper arm near the tripping horn at 42 tons, the anchor still holding by the lower arm. Shank permanently set 2½ inches at the point of upper arm; the iron was sound and good.
1842: 11 May -	None - -	69 2 13	Rodger's patent -	53½	-	Defective in the throat at 53½ tons; very unsound.
13 September	2,327	15 3 10	Ditto - - -	17½	46	Not broken, but cracked in the shank, in 10 different places; shank considerably bent.
13 September	2,323	10 1 1	Ditto - - -	12½	38	Not broken, but bent; cracked in nine places; one crack across the throat; shank bent.
14 September	2,326	5 0 17	Ditto - - -	7½	30	Not broken, but the shank bent considerably; cracked in the champher in six places on one side, five on the other.

Appendix.

WOOLWICH.

No. 1.

PROPOSED FORM FOR SMITHERY ACCOUNT.

Week ending 184 .

Ship or Service.	Item.	No. of Fire.	Cwt. qrs. lbs.	Ref.	£. s. d.	£. s. d.
	TOTAL on " " ship					

These entries are obtained from the day book containing the daily register of work delivered from the smithery, and from the pay lists.

The use of this book, which must be made up at the same time as the wages are paid, is to show the superior officer at a glance what amount of force has been put on any ship or service, and whether his instructions on this point have been implicitly obeyed. Foremen are much given to suit their own convenience in this respect, and to continue to employ their men on such work as suits themselves, instead of taking the trouble of going to seek out beforehand for different items of work for the ship ordered to be pushed on.

This book also brings before the notice of the superior officer exactly how and for what service the whole of wages paid for the work was expended, and thus checks the employment of the men on anything else than what he has approved of.

No. 2.

PROPOSED FORM FOR SMITHERY ACCOUNT.

No. Fire. Cost of Labour.

A. B.,—First Class Smith, with Hammermen.

Date.	Ship or Service.	Of what Materials made.	Weight of Work.	Amount of Wages paid.	Rate of Cost.		REMARKS.
					Per lb.	Per cwt.	
28 Oct. - -	"Grampus," one forked knee.	Bar iron	Cwt. qrs. lbs. 3 1 5½	£. s. d. 1 18 6	d. 1½	s. d. —	Fair.
28 Oct. - -	Repairing tools - -	- -	- -	- 7 -	-	-	Too much.

These items are obtained from the day book containing the daily register of work delivered from the smithery, and from the pay lists, and the rate of cost is calculated from them.

This book shows the cost in wages per lb. or per cwt. of every item made in the smithery, and if the amount proper to be paid is exceeded it is at once known. It also gives a stimulus, which is so much needed in the service, to men to exert themselves, because if two men are employed on the same kind of work it is at once seen which of them has done his work in the least time, and it would especially answer the purpose if it was known by the men that this book would be looked into whenever any promotions were to be made among them, and that merit in this respect would have its due weight. If any man's work was continually below the standard it would be shown, and measures respecting him taken accordingly. It is necessary to distinguish the material of which the work is composed, as blocks are often provided to the smith from the tilt hammer, as for large knees ready forged to the size, and wanting only to be bent or welded at the corner.

No. 3.

PROPOSED FORM FOR SMITHERY ACCOUNT.

No.	Fire.	Cost of Labour and Weight of Material.
-----	-------	--

A.B.,—Smith, with Hammermen.

[illegible]

This form supersedes No. 2 form, showing the weight of material used, and the waste, if this be considered desirable, in addition to what is there shown. The remarks made on No. 2 form are equally applicable here.

It must tend materially to the benefit of the service if, in addition to the books for the purposes explained on these two forms, whether kept exactly in this form or in some other similar one, a regular ledger account were kept against each smithery and each department, such as foundry, &c., debiting it with all expenses incurred on account of labour, material, coals, &c., and giving it credit for all the work delivered from it. This account to be made up annually, and thus show the total real cost of all the work done in it. Such books are kept by many private manufacturers, and at the large extensive works of some of the railway companies, and there is no insurmountable difficulty whatever in adapting them to all the peculiarities of the service in the dockyards.

(signed) *A. Murray.*

COPY of REPORT of COMMITTEE on METALS
to the Lords Commissioners of the Admiralty
in 1845, on IRON.

(*Mr. Laird.*)

Ordered, by The House of Commons, to be Printed,
25 June 1867.

[*Price 1 s.*]

394.

Under 12 oz.

NAVY (IRON BALLAST).

RETURN to an Order of the Honourable The House of Commons,
dated 7 May 1867;—for,

RETURN “Of the Total Quantity of IRON BALLAST the Property of the Government, whether ‘In Store’ or ‘On Charge,’ Loaned, or otherwise disposed of to the Board of Works or other Public Department, or Private Parties, giving—

- 1st. The Quantity of Iron Ballast as given in Mr. Seely’s Return, No. 288, Deducting therefrom, or Adding thereto, any Quantity that may have been taken from or added to such Quantity since the Date of such Return ;
- 2nd. The Total Quantity in all other places in the United Kingdom, such as at the Dockyards and Victualling Yards ;
- 3rd. The Total Quantity in Ships in the United Kingdom ;
- 4th. The Total Quantity in Ships out of the United Kingdom ;
- 5th. The Total Quantity at any Foreign Stations or Places, such as *Bermuda*, *Halifax*, or elsewhere ;
- 6th. The Total Quantity of Iron Ballast, the Property of the Admiralty.”

Admiralty, }
15 August 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

RETURN showing the Total Quantity of IRON BALLAST, the Property of the ADMIRALTY, in HER MAJESTY’S DOCKYARDS at HOME and ABROAD, and at other Places, and on Board HER MAJESTY’S SHIPS on HOME and FOREIGN STATIONS, on the 31st March 1867.

		TOTAL.
	Tons.	Tons.
1. In Her Majesty’s Dockyards at Home :		
a. In Store for general issue - - - - -	3,798	
b. Laid down for Tramways, Docks, Caissons, &c. - -	37,819	
c. On board Ships in ordinary - - - - -	15,723	
d. On board Dockyard Craft - - - - -	962	58,302
2. In Her Majesty’s Victualling Yards, and at other places in the United Kingdom :		
a. Haulbowline Naval Yard - - - - -	269	
b. Victualling Yards - - - - -	15	
c. Victualling Yard Craft - - - - -	274	
d. Coal Depôt, Queenstown - - - - -	16	
e. On board Ships in the United Kingdom, lent to Refor- } matory Societies, Charitable Institutions - - - }	2,356	2,930
3. On board Ships in commission on Home Stations - - -	6,582	
Coast Guard Cruisers - - - - -	661	7,243
4. On board Ships in commission on Foreign Stations - - -		2,510
5. At Foreign Stations - - - - -		1,594
6. Total quantity of Iron Ballast, the property of the Admiralty - - -	Tons.	72,579

R. Dundas,
Storekeeper General of the Navy.

NAVY (IRON BALLAST).

RETURN showing the Total Quantity of Iron
Ballast, the Property of the Admiralty, in
Her Majesty's Dockyards at Home and
Abroad, on Board Her Majesty's Ships
on Home and Foreign Stations, and other
Places, on the 31st March 1867.

(*Mr. Seely*)

*Ordered, by The House of Commons, to be Printed,
16 August 1867.*

461

NAVY (IRON BALLAST).

RETURN to an Order of the Honourable The House of Commons,
dated 13 May 1867 ;—for,

COPY “ of the REPORT of Dr. *Percy*, of the 8th day of May 1867, relative to
the Quality or Value of the IRON BALLAST laid down as PAVING in HER
MAJESTY’S DOCKYARDS.”

Admiralty, }
20 May 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

Dr. *Percy* to the Secretary of the Admiralty.

Sir,

8 May 1867.

IF I remember correctly, it was in the autumn of last year that I had an interview with Admiral Sir John Hay at the Admiralty, respecting the dockyard ballast iron, which has excited so much attention. I then expressed my opinion to Sir John Hay that the appearance of the broken surface, or as it is commonly termed the fracture of certain specimens of that iron, indicated its suitableness for the Palliser shot ; and I suggested that an application should be made to the proper authority at the Arsenal at Woolwich to test the correctness or otherwise of my opinion. My suggestion was adopted, and after the lapse of considerable time a report on the subject from the Arsenal was presented to the Admiralty. I have read and maturely considered that report, and I maintain now, as I did at first, that the trial at the Arsenal was wholly inconclusive, nay, even useless. It might reasonably have been expected that the trial would have consisted in actually casting a shot or two of the metal in question, when decisive results would have been obtained ; but no such trial was made. Some of the ballast iron is “ strong mottled,” and closely resembles in appearance the variety of pig-iron which is used in the manufacture of Palliser shot at Woolwich. If some of the ballast iron be too white for the purpose, it might be rendered suitable by melting it in admixture with a due proportion of grey iron.

I venture to predict that hereafter much cheaper pig-iron than is now purchased at the Arsenal for the Palliser shot will be found equally good for the purpose ; and this is a pecuniary question in which, I presume, the Admiralty is deeply interested.

The analytical results obtained by Mr. Weston demonstrate that much of the ballast iron is adapted for the manufacture of bar iron of good quality.

I have, &c.

(signed) *John Percy*, M.D., F.R.S.

The Secretary of the Admiralty.

NAVY (IRON BALLAST).

COPY of the Report of Dr. *Percy*, of 8th May 1867, relative to the Quantity or Value of the IRON BALLAST laid down as PAVING in HER MAJESTY'S DOCKYARDS.

(*Mr. Seely.*)

Ordered, by The House of Commons, to be Printed,
21 May 1867.

NAVY (IRON BALLAST).

RETURN to an Order of the Honourable The House of Commons,
dated 25 July 1867 ;—for,

COPY “of a LETTER from Colonel *Boxer*, R.A., Superintendent of the Royal Laboratory at *Woolwich*, dated the 17th day of June 1867, relative to the COMMENTS made by Dr. *Percy*, of the Examination of the BALLAST IRON in the ROYAL LABORATORY.”

Admiralty, }
25 July 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

Sir,

Royal Laboratory, Woolwich, 17 June 1867.

THE opinion expressed by Dr. Percy in the enclosed Report as to the suitability of the Dockyard Ballast Iron for Palliser Chilled Shot cannot be considered of much value, as that gentleman has neither had any experience in the manufacture of these projectiles nor made himself acquainted with the system pursued in their production in this department.

It appears that Dr. Percy regards the report I made to Sir J. Hay in November last, as “wholly inconclusive, nay, even useless.” Considering what has been accomplished in this department in connection with the production of Palliser Chilled Shot, it is surprising that a gentleman possessing no practical experience in the matter should have ventured to express so strong an opinion. When I was consulted as to the use of the Dockyard Ballast Iron, I assured Sir John Hay that I would do my best to make it available for this service.

Five tons were sent from Woolwich Dockyard to the Laboratory foundry. Upon inspection it was found to vary considerably in character and quality ; a small proportion appeared suitable for the manufacture of chilled projectiles, but the larger proportion was manifestly unfit in its present state, and could only be rendered available after expensive manipulation.

In order to ensure the proper quality and correct dimensions of chilled projectiles, it is essential that iron of a known character and of an uniform quality should be used.

Although economy of production should always be, and has always been regarded by me as important, efficiency is an element of far greater importance, particularly with the class of stores supplied by the Laboratory, and I should be greatly to blame if I allowed any material to be used which is pronounced unfit for the Service by those who are capable of forming a correct judgment.

I think, under these circumstances, I have good reason to complain of Dr. Percy's Report having been presented to Parliament by the Admiralty.

In the first place, my communication to Sir J. Hay was not an official one, and ought not, without my knowledge and consent, to have been submitted to the criticism of Dr. Percy ; and secondly, when Dr. Percy's statement which impugned the value of my report upon a matter immediately connected with my official duties was called for, I ought, in common justice, to have been given an opportunity of replying to his assertions before they were made public.

Dr. Percy predicts that "hereafter much cheaper pig iron than is now purchased in the Arsenal for the Palliser shot will be found equally good for the purpose." This is a very safe prediction, as the labours of those connected with the manufacturing establishments of the War Department have hitherto always resulted in continual improvements, both with regard to economy and efficiency.

We have been experimenting for some time past with different descriptions of iron, with a view to cheapen the production of Palliser chilled projectiles, and it is probable that we may ultimately succeed in effecting a considerable reduction upon the present cost.

I have the honour to request that this communication may be submitted to the Admiralty, and to express a hope that it will be laid before Parliament.

The Director of Ordnance,
War Office, Pall Mall.

I am, &c.
(signed) *E. M. Boxer*,
Superintendent Royal Laboratory.

NAVY (IRON BALLAST).

COPY of a LETTER from Colonel Boett, R.A.,
Superintendent of the Royal Laboratory at
Woolwich, dated 17th June 1867, relative to
the COMMENTS made by Dr. *Percy*, of the
Examination of the BALLAST IRON in the
ROYAL LABORATORY.

(*Lord Henry Lennor.*)

Ordered, by The House of Commons, to be Printed,
26 July 1867.

480.

Under 1 oz.

467

NAVY (IRON BALLAST).

RETURN to an Order of the Honourable The House of Commons,
dated 14 August 1867;—for,

COPY “of LETTER from Dr. *Percy*, dated 5th August 1867, on the Question
of IRON BALLAST.”

Dr. *Percy* to the Secretary to the Admiralty.

My Lord,

5 August 1867.

As Colonel Boxer, R. A., Superintendent of the Royal Laboratory at Woolwich, has written a letter to the Director of Ordnance, dated 17th June 1867, which, on the motion of your Lordship, has been presented to the House of Commons, and by order of the House has been printed, and as that letter specially affects myself, I am under the necessity of submitting the following statement to your Lordship.

I was not aware of the existence of the iron ballast in the dockyards until I read a report of Mr. Seeley's speech on the subject in the House of Commons; and not until the present year have I had any communication, direct or indirect, with that gentleman on that subject. In the Autumn of last year, at the request of Sir John Hay, I called at the Admiralty, and there saw several samples of this iron ballast. I carefully inspected the fractured surfaces, and I said that, so far as I could form a judgment from such inspection, some of the metal seemed to me exactly suited for the manufacture of the Palliser projectiles; and in the sequel I will give my reason for that opinion. I was informed that all the iron ballast had been made before 1815, that is about 15 years before the introduction of what is termed “hot blast;” and this fact would furnish strong presumption of good quality. I advised that the Admiralty should test the correctness of my opinion by actual experiment; and further, that the chemical composition of samples presenting the greatest difference on their fracture should be ascertained. I gave no opinion whatever on the financial part of the question, nor did I mention the name of any iron master or of any iron merchant from whom information might be sought. The Admiralty were pleased to follow my advice.

Colonel Boxer was requested to make experiments upon the metal at the Arsenal, and Mr. Weston, a competent analyst, in the service of the Admiralty at Portsmouth, was instructed to make the proposed chemical investigation. The results of the experiments at the Arsenal are recorded in the following report, published in the Returns on Navy (pig-iron), dated 4th March 1867:—

“The iron was first broken up, and selected; about three-fourths of it presenting a white appearance, and the remaining one-fourth being of a dull grey colour.

“Four cwt. of the ‘white’ was then melted and run into pigs, which, when broken, seemed to have changed very little in appearance. Four cwt. of the ‘grey’ was treated in a similar manner, but the pigs, when broken, looked mottled. The iron altogether is of a very coarse and common description, and, judging from what may be seen of it in the above-named trial, I would not recommend its adoption in the manufacture of shot and shell.”

Now, my Lord, it is clear that no answer is given in that Report to the question proposed for experimental solution, and I deliberately repeat what I stated in my letter of 8th May 1867, previously referred to, namely, “that the trial at the Arsenal was wholly inconclusive, nay even useless.”

I now pass on to the consideration of Colonel Boxer's letter.

The first sentence is, “the opinion expressed by Dr. *Percy* in the enclosed Report as to the suitability of the dock-yard ballast iron for Palliser chilled shot cannot be considered of much value, as that gentleman has neither had any

experience

experience in the manufacture of these projectiles nor made himself acquainted with the system pursued in their production in this department."

That statement is erroneous. Before my interview with Sir John Hay, I had carefully examined the pig-iron used at the Arsenal for the Palliser projectiles; I had seen those projectiles cast in the Arsenal; and, under the guidance of Major Palliser himself I had carefully inspected the extensive and highly instructive series of specimens at the Arsenal illustrative of the fracture of such projectiles made with different kinds of pig-iron, and prepared under different conditions. I observed that the fracture of the metal at the Arsenal, which was alleged to be most suitable for the Palliser projectiles exactly resembled that of some of the ballast iron, and hence I inferred that the latter might be used for those projectiles. It is, moreover, a variety of fracture which I have specially studied, and with which I have long been familiar, and it is one which any person of experience in chill-casting would have immediately suggested as indicative of pig-iron suitable for that purpose.

The only other sentence requiring comment from me is the following:—"Dr. Percy predicts, that 'hereafter much cheaper pig-iron than is now purchased in the Arsenal for the Palliser shot will be found equally good for the purpose.' This is a very safe prediction, as the labours of those connected with the manufacturing establishments of the War Department have hitherto always resulted in continual improvements, both with regard to economy and efficiency."

I beg to express my hope that Colonel Boxer may speedily have the satisfaction of fulfilling his prediction. If he do not, I venture further to predict that the credit of that fulfilment will be reserved for other persons. It should be remembered that the manufacture of Palliser projectiles is not confined to the Arsenal, and other persons besides Colonel Boxer have "practical experience" in the art.

The panegyric which Colonel Boxer has in the preceding sentence bestowed upon his own labours is, I have no doubt, well deserved; but it would probably have come with better grace from a less interested source.

In conclusion, I have to request that this letter may be submitted to the War Department, and that in simple justice to myself it may be added to the published correspondence.

I remain, &c.

(signed) *John Percy*, M.D., F.R.S.,
Lecturer on Metallurgy at the Royal School of Mines,
at the Royal Artillery Institution,
and at the School of Naval Architecture.

NAVY (IRON BALLAST).

COPY of LETTER from Dr. *Percy*, dated 6th
August 1867, on the Question of IRON BAL-
LAST.

(*Lord Henry Lennox.*)

*Ordered, by The House of Commons, to be Printed,
14 August 1867.*

540.

Under 1 oz.

NAVY (PIG IRON).

RETURN to an Order of the Honourable The House of Commons,
dated 4 March 1867;—for,

COPY “of Messrs. RYLAND’s and any other REPORTS received on the subject of
PIG IRON in the DOCKYARDS, since August 1866.”

Admiralty, }
19 March 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

REPORT, dated 26 June 1866, from STOREKEEPER GENERAL.

(Ballast Iron.)

Nor any measures have been taken during the last 15 years to dispose by public advertisement of any large quantities of the iron ballast accumulated in the several Dockyards. Experiments have been made from time to time to ascertain the prices which could be realised, by inserting small lots both of broken and unbroken pigs of iron ballast in the catalogues of sales of old stores at some of the yards; and the prices obtained varied from 32 *s.* 10 *d.* per ton for broken ballast to 41 *s.*, and from 33 *s.* to 44 *s.* per ton for unbroken ballast. Distinct offers have been made from time to time by merchants for the purchase of small lots, *i. e.*, from 300 to 500 tons, at 44 *s.* per ton for broken, and 47 *s.* 6 *d.* per ton for unbroken ballast, which have been accepted, the officers of the yards having considered them to be liberal terms.

It will be seen from the Return laid before the House of Commons, dated 28th May 1866, that the total quantity of ballast (broken and unbroken) sold from 1860 to the present time has been 1,823 tons, realising 4,283 *l.*, or about 2 *l.* 7 *s.* per ton.

It would thus appear that the fair value of the iron ballast in store at the yards is not worth more for sale than 47 *s.* per ton, the purchaser being at the expense of removing it.

The 31,011 tons of iron ballast appearing in the Return, as laid down in the respective Dockyards for various purposes, is still available, either for use as ballast or for sale; in the meantime it has been advantageously employed, and the cost of other materials thereby saved to the Crown.

The contract for ballast in 1815 stipulated that the large pigs of ballast should be 3 feet long and 6 inches square, the small pigs 18 inches long, 6 inches broad, and 4½ inches deep, to be marked with the $\uparrow$ and to have two holes for lifting the pigs; one ton to be equal to five cubic feet; contents to be good, sound, merchantable, and not to break; subject to approval by the officers. The greater portion of the ballast in store has no brand of manufacture on it.

There is no market price for ballast of the description now in use in the service, but it has been ascertained that the present market price of cold blast
146. A pigs

REPORTS RELATING TO PIG IRON (NAVY).

pigs of that description would be from 50 s. to 3 l. per ton, to which must be added 25 s. per ton for carriage, &c., making about 4 l. 5 s. per ton, and showing a difference of 23 s. per ton as compared with the contract price in 1815, which may arise from margin for profit to the merchant, and difference in the market price at the two periods.

(signed) *Nelson Girdlestone,*
for Storekeeper General.

STORE, including that on board SHIPS in ORDINARY.

		<i>Tons.</i>			<i>Tons.</i>
31 December 1850	- -	58,854	31 December 1859	- -	49,304
" 1851	- -	58,836	" 1860	- -	47,788
" 1852	- -	57,115	" 1861	- -	38,040
" 1853	- -	55,469	" 1862	- -	37,473
" 1854	- -	53,404	" 1863	- -	35,344
" 1855	- -	49,849	" 1864	- -	33,934
" 1856	- -	51,858	" 1865	- -	22,835
" 1857	- -	50,962	31 March 1866	- -	19,840
" 1858	- -	64,886			

MEMORANDUM, 26 June 1866, from DIRECTOR of WORKS, for
Superintending Lord.

(Ballast Iron, for Roads and Floors.)

On the introduction of steam into the Navy, the use of iron ballast for ships became unnecessary, and in consequence large quantities of it accumulated at the various Dockyards.

Simultaneously with the introduction of steam, ponderous masses of iron and machinery were brought into the yards, which were for the most part formed on reclaimed ground, the wear and tear of roads, and damage to the floors of the factories consequent on the removal of such heavy weights from one part to another, thus became excessive; and as from the uncertainty usually attending a state of change, no immediate steps were taken to dispose of the ballast, it being too unfit, from the nature of the ore of which it was composed, for casting for other services, it occurred to the superintendents and officers that, for the repair of the roads and shop floors thus so seriously injured, this cumbersome, and apparently otherwise useless iron, might be advantageously appropriated; and so it was gradually used up.

For, in a Parliamentary Paper just printed, it is shown that 29,182 tons of this material have been employed in making upwards of 36,000 superficial yards of tramways, roads, and floors; and although efforts were from time to time made to sell it, but little more than 1,800 tons have been purchased, at an average rate of 2 l. 7 s. per ton, whereas the original cost per ton was 5 l. 8 s.

The average relative expense of laying iron ballast, and that of using granite for paving and tramroads, is, for ballast as paving, excavating, forming the ground, and every expense, except the iron ballast, 2 s. 6 d. per superficial yard, granite, 10 s. 6 d. per superficial yard. For ballast as tramroads, foundation, and every expense except the ballast, 9 s. per yard lineal for the double line; granite, for the double line, 3 l. 5 s.; from which it may be seen that taking the ballast at the price obtained for it by sale, viz., 2 l. 7 s. per ton, the cost of laying it would be 4 l. 4 s. per yard lineal, or only 19 s. more than the cost of granite.

But it must be borne in mind that whilst a granite tramway has required hitherto removing and redressing at the very least once in seven years, and since the adoption of heavy armour plating for ships needs renewal more frequently, the iron ballast does not shift, is not so easily displaced from its foundation, and the effect of wear and tear upon it being so slight as to be nearly inappreciable; it may almost be termed everlasting.

To

To this must be added that the traction over an iron train is far less than over granite, and thus further economy in the use of iron ensues, and hence that which was originally suggested for convenience and by necessity, was, in reality, a wise system for making roads and floors in dockyards, remarkable for economy, efficiency, and durability.

Further, even were not this the case to so great an extent as has been shown, it may be affirmed that the service to which this material has been applied is the only one, besides that for which it was primarily intended, for which it could have been made available; for it has been stated by the firm from whom the ballast was obtained in 1815, that they had repurchased from the Crown 1,000 tons of that which they then supplied, and of this quantity only 160 to 170 tons had been employed for foundry purposes; that it was quite exceptional to find any suited for such use; that what was so used was of French manufacture; that the quality of iron ballast, generally, rendered it unfit for a similar purpose, as it was made of the commonest description of iron, and that it was bought by them as kentledge for ballasting ships.

Hence it appears that the ballast in question has not in any way deteriorated by the use made of it; could it be so utilised, it is still as fit for foundry purposes as when laid down, while it has, by the saving effected by it, even when appropriated in the manner referred to, already more than repaid its original cost.

COPY of REPORT received 24 November 1866, from the MANAGER to the SUPERINTENDENT ROYAL LABORATORY, in reference to the old BALLAST IRON recently received from Her Majesty's Dockyard, *Woolwich*, for trial in the Department, as to its fitness for Manufacturing Purposes.

THE iron was first broken up, and selected; about three-fourths of it presenting a white appearance, and the remaining one-fourth being of a dull grey colour.

4 cwt. of the "white" was then melted and run into pigs, which, when broken, seemed to have changed very little in appearance.

4 cwt. of the "grey" was treated in a similar manner, but the pigs, when broken, looked mottled.

The iron altogether is of a very coarse and common description, and, judging from what may be seen of it in the above-named trial, I would not recommend its adoption in the manufacture of either shot or shell.

Messrs. *Ryland* to Secretary of the Admiralty.

Union Passage, Birmingham,
19 December 1866.

My Lords,

REFERRING to our report of this date on the Navy iron ballast, we have, as a matter of business, to make the following proposal:—

Their Lordships will be enabled to judge from our report, and the samples supplied therewith, that an indiscriminate sale of the iron would result in a great sacrifice as an article of intrinsic value, which requires only the due exercise of judgment and trade knowledge to render its price unaffected by prejudicial circumstances as of the period, and of its being looked upon as what is known as a "chance lot."

That an excellent price can be obtained for much of this iron as of superior quality, if assorted into proper numbers, we make no question but this will be a work of great care and skill. To realise the full value of the iron requires not merely a full knowledge of the purposes to which each kind can be applied, but also of the parties with whom it can be best placed, as well as judgment in disposing of it. To take so large a quantity on the market at once would be to deliver it into the hands of comparatively a few buyers alone competent to purchase it, and ready to combine against any purchasers out of their own circle.

We propose, therefore, to offer our services to the Admiralty, and to act as brokers and merchants for the sale of this iron. Trusting that their Lordships

will consider us entitled under the circumstances to a trade commission commensurated with our trouble and our services, the knowledge to be applied, and our creating a market, and bringing it properly to the trade, so that the highest possible price may be obtained.

A *del credere* commission of 5 per cent., we paying for the iron on delivery, is the rate which we propose. This, we hope, their Lordships will consider fair.

The commission we ask will be much more than amply recouped by the extra price that we shall be enabled to obtain, the facilities in our connection for its more rapid distribution, our knowledge of the requirements of every department of iron manufacture, and of the parties with whom to place it most advantageously.

Nor would our services be confined to the direct sale, merely of the iron, as brokers. We would suggest to their Lordships that a very considerable amount of this iron judiciously selected, as we are prepared to point out, may, under the direction of your officers, be remanufactured into any description of iron required for Navy purposes, whereby a large economy may be obtained, and, what is even of more consequence, the possession of a dependable superior quality of iron for ship building and ordnance purposes secured, bearing in mind that this parcel of iron is what is known as "cold blast," and free from cinder, and of it being of a very superior quality.

Lord Henry J. Lennox,
&c. &c. &c.,
Admiralty, Whitehall.

We have, &c.
(signed) *George Ryland & Co.*

REPORT of Messrs. *Ryland*, forwarded in their Letter of the 19th December 1866.

(Navy—Iron Ballast.)

REPORT on the Trials made by *George Ryland & Co.*, of *Birmingham*, Iron Brokers, of IRON BALLAST received by them from Her Majesty's Dockyards at *Devonport*, *Chatham*, and *Portsmouth*.

To the Lords Commissioners of Her Majesty's Honourable Board of Admiralty.

My Lords,

HAVING received samples of iron ballast from three of Her Majesty's Dockyards, viz., Devonport Yard, Chatham Yard, and Portsmouth Yard, we have had each sample broken so as to ascertain the quality (or trade number) of each pig.

DEVONPORT YARD.

Twelve pigs of iron from this yard comprised—

1 Pig, No. 2.	
2 ditto, No. 3 }	grey forge iron.
2 ditto, No. 4 }	
1 ditto, No. 5,	forge iron.
2 ditto, No. 6,	strong forge iron.
2 ditto,	mottled iron, with core in middle of pig.
2 ditto,	white iron.

12 - - Total Pigs.

These pigs average about 3 qrs. 15½ lbs. in weight, and are about 4 inches square in thickness.

We deem it necessary at this point to call your Lordships' attention to the fact, that out of these 12 pigs sent to us from one Dockyard, there are seven different sorts, known to the trade by the special numbers as indicated. As each particular class of manufacture requires certain numbers of iron, and those only, your Lordships will observe that the fact of the iron being in mixed numbers is a grave disadvantage, since it cannot be assorted without each pig being broken.

CHATHAM

CHATHAM YARD.

Nine pigs of ballast iron from this Yard comprised—

1 Pig, No. 3	} grey forge iron.
3 ditto, No. 4	
3 ditto, No. 6, strong forge iron.	
2 ditto, mottled iron.	

9 - - Total Pigs.

These pigs average 1 cwt. 1 qr. 3 lbs. each in weight, and about $5\frac{1}{2}$ inches by $4\frac{1}{2}$ inches in thickness.

PORTSMOUTH YARD.

Four pigs of ballast iron from the Yard comprised—

1 Pig, No. 5, forge iron.
1 ditto, No. 6, strong forge iron.
2 ditto, mottled iron.

4 - - Total Pigs.

These pigs average 2 cwt. 2 qrs. $2\frac{1}{2}$ lbs. in weight, and about $6\frac{1}{4}$ inches square in thickness.

The great size of these pigs may operate as a drawback in their price to the extent of 2 s. 6 d. per ton, since a particular regulation of the trade in puddling might not improbably bring them under the denomination of “castings,” for which an extra price to that extent is paid for puddling.

YIELDS.

In testing the yield of the respective lots in the puddling furnaces, we find in the ballast iron—

From the Devonport Yard, a loss of 1 qr. 14 lbs. in a “charge” of 4 cwt. 1 qr. 14 lbs.

From the Chatham Yard, a loss of 1 qr. 29 lbs. in a charge of 4 cwt. 1 qr. 14 lbs.

From the Portsmouth Yard, a loss of 2 qrs. 10 lbs. in a charge of 4 cwt. 1 qr.

The greater loss in this iron is partly accounted for by the largeness of the pigs and the extra time taken in melting them.

MANUFACTURE.

We have had some of the iron of each lot manufactured into puddled bar, round, square, and flat iron; and herewith we produce samples of the same numbered for distinction, as follows, viz. :

From the Devonport Yard—Iron, of mixed Numbers.

No. 10, puddled bar, $2\frac{1}{2}$ by $\frac{5}{8}$ inch nicked, with chisel, and bent cold.
 No. 11, ditto, $3\frac{1}{2}$ by $\frac{5}{8}$ inch, nicked with chisel, and broken cold.
 No. 12, billet, $1\frac{1}{4}$ by inch, nicked with chisel, and broken cold.
 No. 13, $1\frac{1}{2}$ inch round, nicked with chisel, and bent cold.
 No. 14, $\frac{7}{8}$ inch square, nicked with chisel, and bent cold.
 No. 15, $\frac{3}{4}$ inch - - ditto - - ditto.
 No. 16, $\frac{5}{8}$ inch - - ditto - - ditto.
 No. 17, flat bar, 1 inch by $\frac{1}{4}$ inch, ditto.
 No. 18, ditto 1 inch by $\frac{1}{4}$ inch, bent cold, without nicking.
 No. 19, ditto 1 inch by $\frac{1}{4}$ inch, re-heated, punched hot, bent hot across the hole to test “red shortness,” if any.
 No. 20, link of chain 1 inch round, iron broke at test of 25 tons, ordinary test 14 to 16 tons.

From the Portsmouth Yard—Iron, of Mixed Numbers.

No. 21, puddled bar, $2\frac{1}{2}$ inch by $\frac{5}{8}$ inch, nicked with chisel, and bent cold.
 No. 22 - ditto - $3\frac{1}{2}$ inch by $\frac{5}{8}$ inch, nicked with chisel, and broken cold.
 No. 23, billets, $\frac{1}{2}$ inch, nicked with chisel, and broken cold.
 No. 24, $1\frac{1}{8}$ inch round, nicked with chisel, and bent cold.
 No. 25, $\frac{5}{8}$ inch round, bent cold, without nicking.
 No. 26, $\frac{7}{8}$ inch square, nicked with chisel, and bent cold.
 No. 27, flat bar, 1 inch by $\frac{1}{4}$ inch, nicked with chisel, and bent cold.
 No. 28,

No. 28, flat bar, 1 inch by $\frac{1}{4}$ inch, bent cold, without nicking.

No. 29, ditto 1 inch by $\frac{1}{4}$ inch, re-heated, punched hot, and bent across the hole to test "red shortness," if any, not so sound as the Devonport and Chatham iron.

From the Chatham Yard—Iron, of Mixed Numbers.

No. 30, puddled bar, $2\frac{1}{2}$ inch by $\frac{5}{8}$ inch, nicked with chisel, and bent cold.

No. 31, - ditto - $3\frac{1}{2}$ inch by $\frac{5}{8}$ inch, nicked with chisel, and bent cold.

No. 32, billets, $1\frac{1}{2}$ inch, nicked with chisel, and bent cold.

No. 33, $\frac{1}{8}$ inch, round, nicked with chisel, and bent cold.

No. 34, $\frac{1}{2}$ inch, round, bent cold, without nicking.

No. 35, $\frac{3}{8}$ inch square, nicked with chisel, and bent cold.

No. 36, flat bar, 1 inch by $\frac{1}{4}$ inch, nicked with chisel, and bent cold.

No. 37, ditto 1 inch by $\frac{1}{4}$ inch, bent cold, without nicking.

No. 38, ditto 1 inch by $\frac{1}{4}$ inch, re-heated, punched hot, bent across the hole to test "red shortness," if any.

GENERAL REMARKS.

The test of this iron in mixed numbers shows it to be of good quality for general purposes, and equal to our South Staffordshire "mine iron." We pronounce it to be suitable, when selected and assorted, for manufacturing into best iron, wire billets, gun-barrel iron, &c. But, for these, uniformity of quality is indispensable, and this can alone be attained by careful selection.

Judging from the quantities submitted to us, but a very small proportion of the iron is adapted for foundry purposes, and this can only be detected by breaking each pig.

A certain portion will be good for armour-plates of extraordinary toughness and strength.

Other qualities are adapted for angle iron, plates, chains, cables, and for all "best purposes."

Others will be more valuable for wire iron; for this, however, as for the other classes, a very careful selection must be made from the whole, and each separated; since, to give an instance, were Nos. 3 and 4 ordered, and 6, or mottled or white iron, sent mixed with them, the whole would be spoilt in the working, and made worthless.

While, then, we entertain no doubt of the superiority of the quality of the iron tested by us, we are bound to submit to your Lordships that much of its marketable value must depend on its proper assortment and judgment in placing it.

If judiciously brought in the market, rightly assorted, and adapted to its proper purposes, in quantities and at periods so as not to overwhelm the demand, very much, if not all, of the iron now in Her Majesty's Dockyards, presuming it to be of the same qualities, may be sold at high prices.

It may also, under suitable direction, be manufactured for Navy purposes to superior advantage.

(signed) *Geo. Ryland & Co.,*
Iron and Metal Brokers, Birmingham.

REPORT of 14 January 1867, from DIRECTOR of WORKS.

(Iron Ballast.)

WITH reference to Board's minute of the 15th November last, directing me to report at what price the department could advantageously use the iron ballast for tramways, comparing it with granite or other substitute, or what price, in fact, I would give for the iron ballast for that purpose, supposing there was no available supply of it in Her Majesty's Dockyards at old store rates, I submit the following statement, showing the average cost of constructing and maintaining the several descriptions of roads and tramways in use at Her Majesty's Dockyards. The rates

rates differ more or less at each establishment, but the following prices are an average of the four principal yards, viz., Chatham, Sheerness, Portsmouth, and Devonport:—

	First Cost.	Annual Maintenance.	
	£. s. d.		
Item 1.—Granite ordinary metalling or macadamized road, at per yard superficial * Or 10 s. 3 d. per yard run of roadway.	* - 3 5	11 d.	{ A road of this description, properly constructed with new metal, and used by wheeled vehicles of suitable construction, is limited only in its duration by its system of maintenance, but no macadamized road would bear the traffic necessary in connection with iron ship-building.
Item 2.—Granite pitching on concrete, laid and grouted, at per yard superficial † Or 1 l. 16 s. per yard run of roadway.	† - 12 -	{ Uncertain, ½ d. to 4 d., according to situation -	{ The duration of a road of this class depends very much on the description of traffic passing over it. Under ordinary circumstances it should stand from 10 to 15 years before taking up, re-dressing, and relaying.
Item 3.—Granite tramway, two feet wide each rail, on concrete foundation, with granite pitching between rails, at per yard run of roadway	3 6 3	{ Ditto, 4 d. to 4 s. 6 d., according to traffic -	{ A tramway of this description, subjected to the heaviest traffic, is estimated to last about 20 years. The annual expense of maintenance is increasing with the increase of iron ship-building and the weight of the armour plates, &c.
Item 4.—Iron rails laid on sleepers, including concrete foundation, and granite pitching between rails, at per yard run of roadway	2 15 6	1 s. 2 d.	{ The average duration of this road is about 15 years; and during this term the rails and sleepers will require to be taken up, the sleepers renewed, and the rails reversed. This expense is not included in the annual maintenance. This system of tramroad involves special rolling stock.
Item 5.—Cast-iron tram plates, 1' 9" wide each, with granite pitching between, including concrete foundation, at per yard run of roadway	3 15 8	- - -	{ This description of tramway is in use at Woolwich Yard only; the wear and tear is small, and it is simple in construction. The plates for this tram were cast from the old kentledges, in the proportion of 3-4ths iron ballast to 1-4th No 1 Coltness iron.
Item 6.—Old pig iron ballast tramway, three feet wide each rail (without concrete foundation), with granite pitching between rails, at per yard run of roadway	2 11 8	3 d.	{ This rate is based on the Board's Order, 31 October 1865, directing the value of the ballast issued to be charged at 1 l. per ton. The annual cost of maintenance is due to defective foundations, requiring the sunken parts of tramway to be taken up and relaid; these inequalities of the surface rapidly destroy any other kind of tram in use; but the iron ballast is practically indestructible, and therefore its duration may be said to be unlimited.

From the foregoing comparison it will be seen that the only description of tramway in use in the Dockyards that can be laid without a concrete foundation is the old pig iron ballast, and that this, when laid on a good and sufficient foundation, is imperishable, whilst the cost for the annual maintenance is insignificant, when compared with granite, which requires frequent repairs, and where there is much traffic, reconstruction at no very distant intervals.

With reference to the price per ton at which the ballast might be advantageously used by the department, I beg reference to my former reports, dated 7th July and 30th September 1865, in which I recommended its use, at its fair selling value, then averaging 1 l. 10 s. per ton (net), provided it was transferred from the storekeeper's to this department. When laid down as paving or tramways I have no reliable evidence to lead me to believe that a higher price than I have quoted will be obtained by the Admiralty for the great bulk of kentledge now laid down in the various yards, this price would, therefore, regulate my adoption or not of this system of roads, if the recent facilities for obtaining the ballast did not exist.

In the event of its being determined no longer to use the iron ballast in the manner described under Item 6, then I submit that the next best system of tramway is that adopted at Woolwich, under Item 5, both as regards economy in the use of the iron and its suitability for dockyard traffic.

(signed) *Andrew Clarke.*

The Secretary.

REPORTS RELATING TO PIG IRON (NAVY).

REPORT OF ANALYSES.

Chemical Department, Her Majesty's Dockyard,
Portsmouth, 28 January 1867.

Sir,

WITH reference to your memorandum of the 31st November last, directing me to make an analysis of the Dockyard ballast iron, Dr. Percy having reported that a correct judgment cannot be formed of the quality and value of the iron from such an experiment as that made at the Royal Laboratory at Woolwich, I beg to forward the results of my analysis of this iron made from six specimens furnished me by the chief engineer of this Yard. Three of the specimens were white pig iron, and three mottled pig, the two varieties described in the accompanying report from Woolwich, and of which the ballast iron, so far as examined, seems to consist. I have, therefore, made a separate analysis of each variety from a mixed sample of the three specimens of each kind. All the constituents usually determined in an analysis for practical purposes, and considered to have any influence on the quality of the iron, have been determined, with the following results:—

WHITE PIG IRON.

Carbon	-	-	-	{ Combined	-	-	-	3.67	per cent.
				{ Graphitic	-	-	-	.20	"
Sulphur	-	-	-	-	-	-	-	.46	"
Silicon	-	-	-	-	-	-	-	.70	"
Phosphorus	-	-	-	-	-	-	-	.72	"
Manganese	-	-	-	-	-	-	-	.19	"

MOTTLED PIG.

Carbon	-	-	-	{ Combined	-	-	-	1.00	per cent.
				{ Graphitic	-	-	-	1.22	"
Sulphur	-	-	-	-	-	-	-	.14	"
Silicon	-	-	-	-	-	-	-	1.74	"
Phosphorus	-	-	-	-	-	-	-	.75	"
Manganese	-	-	-	-	-	-	-	.26	"

I may state that I have satisfied myself the three specimens of each variety do not vary in quality.

I have, &c.
(signed) *Wm. Weston.*

REPORT of 16 February 1867, from STOREKEEPER GENERAL.

WITH reference to their Lordships' directions of the 24th, relative to the report of 19th December last of Messrs. Ryland on iron ballast from the Dockyards, I submit the following observations:—

According to that report 25 pigs of iron ballast were received by Messrs. Ryland from the Dockyards, and the results of their re-manufacture show that they consisted of, at least, seven different sorts or qualities of iron. Their total weight is not stated in the report, but if the average weights of the pigs from each of the Dockyards from which they were received, viz., Chatham, Portsmouth, and Devonport, are correctly stated, it appears to have been about 32 cwt. 1 qr. 2 lbs.

Assuming, also, the loss on re-manufacture of the iron ballast from each yard respectively to be correctly given, its aggregate amount was 3 cwt. 2 qrs. 16 lbs. on the above-stated quantity.

A correct opinion of the real quality of the specimens of the re-manufactured iron can be found only by competent judges who have verified their origin, and have seen and tested them.

The earliest contract remaining on record in the contract office for iron ballast is dated on the 29th March 1771.

In the specification of that contract the size of the bars is not stated; but with that exception the specification is similar to that of the subsequent contracts of

15th July 1801, and of the 20th December 1815, the first of the last contracts of the present century.

The specification is as follows: "Every bar to be about 3 ft. long and 6 in. square, marked with the broad arrow, and to have a hole at each end for lifting or removing, and its specific gravity to be equal to the best that has heretofore been delivered into any of Her Majesty's Dockyards. Each ton in weight is not to exceed five cubical feet in contents, and to be good, sound, merchantable, well conditioned, such as shall be approved by the officers of the Yard, and in every respect fit for Her Majesty's service; and if any should, upon trial, happen to break, the contractors are to receive the same back and deliver others in lieu thereof." Whether or not any iron ballast was supplied under the contract of December 1815 cannot be stated from the records now in use in the Store Office.

Considering the great number of ships broken up or sold out of the Navy after the general peace in the year 1815, possibly more was supplied under that contract.

The specification of that and previous contracts does not appear to promise for the supply of iron of superior quality for other purposes than ballast.

The report of Messrs. Ryland seems to negative the assumption that much of it can be substituted for melting pig iron for foundry purposes, and to corroborate the official reports of the officers of the Dockyards on that point.

The total store of iron ballast not in use, now in the Dockyards, appears by the store accounts to be 6,059 tons.

No indication of the money value per ton of any portion of the seven different sorts of iron stated to be included in the specimens referred to is afforded in Messrs. Ryland's report of 19th December last.

The conclusion to be drawn from it is that, in order to arrive at the estimate of the quality and value of the whole store, every pig must be broken; in other words, the whole must be reduced to the value of broken ballast.

No estimate is given of the expense per ton of the process of breaking it, and the price per ton to be received by the Admiralty for any part of it, when broken, remains altogether problematical.

As the store office of the Admiralty has never, as far as I know, been in relations with Messrs. Ryland & Co., I am not in a position to offer an opinion with regard to the expediency of entertaining their offer of their services as brokers or merchants for the sale of the whole or part of the iron ballast in store, or for the instruction of the professional officers of the Dockyards in the proper modes of re-manufacturing it, with reference to the various qualities of which it is stated to consist, and the different uses of which they are alleged to be suitable, but I am of opinion it would not be worth while for the Admiralty to incur the expense of breaking it up as a condition preliminary to a sale.

It is valuable as it is, for the purposes to which it can be applied hereafter, as the extension works at Chatham and Portsmouth shall advance, and at other yards occasionally, and can be used for those purposes without further outlay of public money for materials in lieu of it.

I concur in the opinion expressed by the Controller in his minute of the 8th ultimo, and in the absence of any definite offer to purchase any of the iron ballast at a stated price per ton, including all charges for its removal from the Dockyards, considerably higher than has been obtained for any of it at the public sales of old Naval stores at the Dockyards, I am of opinion it will be expedient to keep as much of it as is likely to be useful for tramways and flooring and similar services in the Dockyards, the Admiralty remaining free to accept any definite offers of purchase, made in terms deemed advantageous to the Crown.

The highest price received for iron ballast sold at public sale in the Dockyards was 2*l.* 1*s.* per ton at Portsmouth on the 18th March 1863, and the highest offer of purchase, not at public sales, has been 2*l.* 7*s.* 6*d.* per ton on 28th August 1865.

The quantity now in use on board ships in ordinary is 10,300 tons.

(signed) *R. Dundas.*

REPORT OF ANALYSES.

(Report on Dockyard Ballast Iron.)

(No. 49.)

Chemical Department, Her Majesty's Dockyard,
Portsmouth, 18 February 1867.

Sir,

WITH reference to their Lordships' directions to me to continue my analysis of the ballast iron, and to report the results for their Lordships' information,

I beg to report that, in the further analysis of the iron, my object has been to ascertain if any great difference in quality exists amongst it; and, in selecting specimens for this purpose, I considered the varying arrow marks on the pigs, apparently indicating iron received at different periods, would be my best guide, and give me a greater variety of specimens than I was likely to obtain by any other mode. I therefore selected 12 pigs, all marked differently, and in each an estimation has been made of the sulphur and phosphorus which, being the two most noxious constituents of iron, it was considered sufficient to determine for the object in view.

Table showing the Amount of Sulphur and Phosphorus in 12 Pigs of Ballast Iron, with a Description of the Iron :

Number.	Character of the Iron.	Per-centage of	
		Sulphur.	Phosphorus.
1	White Iron - - -	·30	·68
2	Ditto - - -	·45	·40
3	Slightly mottled - -	·22	·32
4	Deeply " - -	·08	·40
5	White Iron - - -	·44	·32
6	Grey " - - -	·04	·14
7	White " - - -	·44	·64
8	Ditto - - -	·48	·30
9	Ditto - - -	·42	·10
10	Ditto - - -	·61	·63
11	Grey Iron - - -	·04	·14
12	Mottled - - -	·17	·19

The first column in the above table gives the character of the iron composing each pig subjected to analysis, but these various conditions of the iron, due merely to the state in which the carbon exists in the iron, whether combined, uncombined, or both, are distinct from the chemical quality of the iron, which the above results show, varies but slightly, and they confirm what my former analysis indicated, that the ballast iron generally is of good chemical quality. Dr. Percy has reported, in commenting on my former analysis, how well adapted the iron is for the manufacture of the "Palliser" shot; but apart from any such special use to which it may be applied in its present state of pig iron, there is no injurious constituent present to any amount that will prevent its making, when "puddled," good "wrought" or malleable iron.

I have, &c.
(signed) *Wm. Weston.*

NAVY (PIG IRON).

COPY of Messrs. RYLAND'S and other REPORTS
on the subject of Pig Iron in the several
DOCKYARDS.

(*Lord John Hay.*)

*Ordered, by The House of Commons, to be Printed,
20 March 1867.*

IRON-PLATED SHIPS AND BATTERIES.

RETURN to an Order of the Honourable The House of Commons,
dated 14 August 1867;—for,

A RETURN “of all IRON-PLATED SHIPS and BATTERIES Built, Building, or
ordered to be Built (in the same form and in continuation of Parliamentary
Paper, No. 526, of Session 1866).”

Admiralty, }
15 August 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

(*Mr. Laird.*)

Ordered, by The House of Commons, *to be Printed,*
16 August 1867.

IRON-PLATED SHIPS AND BATTERIES.

THE cost given in this Return is taken from the papers laid before Parliament yearly, compiled in the Accountant General's Office, corrected up to the latest date of the accounts in office.

An explanation of the nature of what he has called Incidental and Establishment charges, also taken from the same documents, is subjoined :

A. INDIRECT CHARGES Incidental to the Building, Repairing, &c., of Her Majesty's SHIPS and VESSELS.

Cables, pendants, chains, swivels, bridles, and buoys.

Transporting hawsers, warps, and other launching and docking gear.

Opening and shutting dock gates and penstocks, floating and sinking caissons and pumping docks.

Landing, surveying, receiving, depositing, and issuing stores.

Shipping off timber and stores to other yards at home (to include the cost of packing cases).

Shipping off timber and stores to other yards abroad (to include the cost of packing cases).

Collecting old timber, chips, and stores for sales; and cleaning and clearing the yard and docks.

Preservation of timber and stores.

Cranes, capstans, steam hoists, &c.—Repairs, replacements, and maintenance of.

Crabs, winches, carts, waggons, timber carriages, sledges, barrows, ladders, &c.

Fire engines, buckets, and hoses.

Wages of all single-stationed men, boats' crews, &c.

Dockyard chapel (labour and petty stores).

Chemical lecture room and laboratory (labour and petty stores).

School for apprentices (including wages while at school).

Petty stores and incidental charges for police force and military guard.

Allowances for apprentices' instructors, inclusive of allowances to draughtsmen for instructing apprentices in drawing.

Half-pay to men absent from the yard in consequence of hurts.

Allowances for holidays.

Coals, candles, and other stores for officers' offices.

Sweeping chimneys.

Waterworks for supplying the yard and for extinguishing fire.

Rope for guys and stages.

Materials and labour for mould lofts.

Timber, blocks, plank, bilgeways, cleats, &c., for launching and docking ships.

Shores, spauls, stage deals, wedges, harpins, and ribbands.

Stores issued to workmen, on loan from loan tool store.

Blocks under new ships, brows, temporary ladders for, and housing over ships, &c.

Screws for securing plank, &c.

Repairs of docks, slips, and basins, including housings over docks and slips, of sheds, workshops, caissons, timber racks, and all other buildings, *when done by yard workmen.*

Repairs, replacements, and maintenance of machinery in workshops and yards, *when done by yard workmen.*

Experimental services.

Other miscellaneous charges.

B. In addition to these charges, called Incidental, the Accountant General has included [*See Accountant General's Report prefixed to the Parliamentary Return, No. 44, of 1866, Navy (Dockyard Stock Valuation) 1864-65, page iv.*]:—

Cost of supervising power of the Establishments at home and abroad, which includes the salaries of all the professional officers, storekeepers, accountants, cashiers, surgeons, chaplains, schoolmasters, clerks, and writers, with their emoluments, house allowances, &c., &c.

Rents, rates, taxes, and contingent charges of the above Establishments.

Cost of surveys and valuations.

Wages of yard craftsmen, and charges for the conveyance of stores.

Repairs and replacement of yard plant, for the purpose of keeping it in working order.

Enhanced or depreciated value of the stock in hand:

and has divided this cost in proportion to the labour and materials employed on the above-recited service.

Moreover, in addition to the foregoing incidental and establishment charges, the charge of 3 per cent. upon the aggregate amount of the manufacturing operations in the several dockyards at home, for the year, has been added to the cost of building, fitting, and repairing ships, as the *final productions* of the yard, in the nature of a rent to cover interest on capital and depreciation of plant in the establishments where the works are carried on. The rate of percentage is in accordance with the recommendation of the Committee on Dockyard Manufactures, based upon the evidence of Mr. Scott Russell, and of Mr. Andrew Murray, Chief Engineer of Portsmouth Factory, given before the Select Committee on Navy, Army, and Ordnance Estimates (Parliamentary Paper, No. 555, Session 1848), and as approved of by their Lordships.

The adoption in full of the foregoing indirect charges has resulted in a charge of about 35 per cent. being added to the gross direct charges for labour and materials expended upon each ship, in the year 1864-65.

In the year 1865-66 these indirect charges amounted to about 51 per cent. on the gross direct charges, an explanation of which increase will be found at page 2 of the Accountant General's Report prefixed to the Annual Return of Expenses on Ships, &c., Parliamentary Return, No. 454, of Session 1867.

In 1866-67, the accounts for which year are not complete, the indirect charges have been calculated at the same rate as in 1865-66, viz., about 51 per cent.

Controller's Office, }
30 August 1867. }

Rob. Spencer Robinson,
Controller of the Navy.

RETURN OF ALL IRON-PLATED SHIPS AND BATTERIES

N A M E S.	By whom Designed.	Name of Builder.	Number of Guns.	Tonnage.	Load Displacement in Tons.	Horse Power.	Name of Engine Maker.	If Engines on improved Expansive Plan, and Surface Condensers.	Draught of Water Estimated.		Length		Breadth		Hull, whether Wood or Iron.			
									Forward.	Aft.	Between Perpendiculars.	Of Keel for Tonnage.	Extreme.	For Tonnage.				
AFLOAT:	Black Prince	Controller's Department.	-	-	-	32	6,109	9,250	1,250	Penn	-	Not so fitted	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Iron	
	Warrior	-	-	-	-	32	6,109	9,020	1,250	Penn	-	- ditto	*25 10	26 9	380 2	337 7½	58 4	ditto
	Defence	-	-	-	-	16	3,720	6,000	600	Penn	-	- ditto	*24 4	25 6	280 0	238 5½	54 2	ditto
	Resistance	-	-	-	-	16	3,710	5,979	600	Penn	-	- ditto	*23 6½	26 2	280 0	238 6½	54 1	ditto
	Achilles	-	-	-	-	26	6,121	9,525	1,250	Penn	-	- ditto	*25 10	27 2	380 0	338 9	58 3½	ditto
	Hector	-	-	-	-	18	4,089	6,409	800	Napier	-	- ditto	*24 0	25 7	280 2	241 6½	56 5	ditto
	Valiant	-	-	-	-	18	4,063	6,364	800	Maudslay	-	- ditto	24 2	25 2	280 2	241 6½	56 4	ditto
	Minotaur	-	-	-	-	26	6,621	10,230	1,350	Penn	-	- ditto	*25 7	26 9	400 0	354 0½	59 4½	ditto
Agincourt	-	-	-	-	26	6,621	10,230	1,350	Maudslay	-	- ditto	25 10	26 10	400 0	353 6	59 5	ditto	
Northumberland	-	-	-	-	26	6,621	10,230	1,350	Penn	-	- ditto	25 10	26 10	400 4	353 0	59 5	ditto	
Royal Oak	-	-	-	-	24	4,056	6,400	800	Maudslay	-	- ditto	*23 10	25 5	273 0	232 8½	58 6	Wood	
Prince Consort	-	-	-	-	24	4,045	6,600	1,000	Maudslay	-	- ditto	*23 6	26 9	273 1	232 8½	58 5	ditto	
Caledonia	-	-	-	-	24	4,125	6,767	1,000	Maudslay	-	- ditto	*24 3	26 8	273 0	231 3½	59 2	ditto	
Ocean	-	-	-	-	24	4,047	6,600	1,000	Maudslay	-	- ditto	*24 2	27 3	273 1	232 9½	58 5	ditto	
Royal Alfred	-	-	-	-	18	4,068	6,502	800	Maudslay	-	- ditto	*23 6	27 0	273 0	232 8½	58 7	ditto	
Zealous	-	-	-	-	20	3,716	6,027	800	Maudslay	-	- ditto	*25 0	25 9	252 0	213 9½	57 2	ditto	
Bellerophon	-	-	-	-	15	4,270	7,277	1,000	Penn	-	Yes -	-	22 1	26 0	300 0	255 3½	56 1	Iron
Lord Clyde	-	-	-	-	24	4,067	7,626	1,000	Ravenhill	-	Yes -	-	*23 5	26 10	280 0	233 11½	58 11	Wood
Lord Warden	-	-	-	-	18	4,080	7,675	1,000	Maudslay	-	Yes -	-	24 0	26 6	280 0	233 9½	59 0½	ditto
Penelope	-	-	-	-	11	3,096	4,213	600	Maudslay	-	Yes -	-	15 9	16 9	266 0	232 9½	50 0	Iron
Pallas	-	-	-	-	8	2,372	3,656	600	Humphreys	-	Yes -	-	*18 7	24 1½	225 0	187 8	50 0	ditto
Favorite	-	-	-	-	10	2,094	3,169	400	Humphreys	-	Not so fitted	-	*19 7	22 7	225 0	195 6½	46 9½	ditto

A. These amounts are for incidental expenses, as charged previously to 31 March 1864. See preceding Statement, paragraph marked A.

B. These amounts are for incidental expenses, as charged since 31 March 1864. See preceding Statement, paragraph marked B.

A. B. These amounts are for incidental expenses, as charged both before and after 31 March 1864.

* The draught of water given for these ships is the actual load draught; that of other ships is the estimated draught of water.

BUILT, BUILDING, OR ORDERED TO BE BUILT.

Whether wholly or partially.	Date when Launched, or probable Date of Launching.	Estimated Date of Completion ready for Commissioning.	If Built on Captain Coles' Cupola Plan, or Mr. Reed's Plan.	First Cost of Vessels now Complete, including Fittings.			Estimated First Cost of Vessels Building in Her Majesty's Dockyards, and in Private Yards. †			Incidental and Establishment Charges (Hull and Engines).	REMARKS.	AFLOAT:
				Hull, Exclusive of Incidental and Establishment Charges.	Engines, &c. Exclusive of Incidental and Establishment Charges.	Total, Exclusive of Incidental and Establishment Charges.	Hull, exclusive of Fittings.	Engines, exclusive of Fittings.	TOTAL.			
				£.	£.	£.	£.	£.	£.	£.		
Partially	27 Feb. 1861	Commissioned	No	283,511	74,482	357,993	224,949	71,000	295,949	A. 6,654	-	Black Prince.
ditto	29 Dec. 1860	ditto	No	282,581	74,409	356,990	190,225	71,875	262,100	A. 4,005	-	Warrior.
ditto	24 April 1861	ditto	No	203,229	84,357	287,586	157,742	33,600	191,342	A. 3,582	-	Defence.
ditto	11 April "	ditto	No	208,571	33,765	242,336	161,410	33,600	195,010	A. 4,997	-	Resistance.
ditto	23 Dec. 1863	ditto	No	375,473	69,117	444,590	(a) 250,000	66,875	316,875	A. 13,981	-	Achilles.
ditto	26 Sept. 1862	ditto	No	237,911	45,738	283,649	172,677	40,000	212,677	A. 4,497	-	Hector.
ditto	14 Oct. 1863	Completed	No	264,443	48,323	312,766	207,213	41,200	248,413	A.B. 3,939	Ship not finally completed for sea. Claims for extra payment made by the Thames Company not yet settled. Accounts given to 31 March 1867.	Valiant.
Wholly	12 Dec. 1863	Commissioned	No	371,446	79,328	450,774	321,117	66,000	387,117	A.B. 11,667†	Ship completed 6 June 1867. Claims for extra payment made by the Thames Company not yet settled. Accounts given to 31 March 1867.	Minotaur.
ditto	27 Mar. 1865	Complete for 2nd Division of Reserve.	No	362,771	83,277	446,048	329,393	67,000	396,393	A.B. 4,185†	Ship not completed for sea. Claims for extra payment made by Messrs. Laird not yet settled. Accounts given to 31 March 1867.	Agincourt.
Partially	17 April 1866	Oct. 1867 for 2nd Division of Reserve.	No	360,439	72,691	433,130	321,117	66,000	387,117	A.B. 2,841†	Ship not completed for sea. Accounts given to 31 March 1867.	Northumberland.
Wholly	10 Sept. 1862	Commissioned	No	189,381	45,310	234,691	150,000	56,000	206,000	A. 24,751	-	Royal Oak.
ditto	26 June "	ditto	No	174,392	52,603	226,995	150,000	56,000	206,000	A. 22,212	-	Prince Consort.
ditto	24 Oct. "	ditto	No	212,763	51,895	264,658	150,000	56,000	206,000	A.B. 34,883	-	Caledonia.
ditto	19 Mar. 1863	ditto	No	201,651	52,162	253,813	150,000	56,000	206,000	A.B. 32,008†	-	Ocean.
Partially	15 Oct. 1864	ditto	No	221,765	47,512	269,277	150,000	56,000	206,000	A.B. 69,999†	Ship completed 24 April 1867. Accounts given up to 31 Mar. 1867.	Royal Alfred.
ditto	7 Mar. "	ditto	Mr. Reed's	170,292	54,134	224,426	127,500	44,000	171,500	A.B. 31,795†	-	Zealous.
ditto	26 April 1865	ditto	ditto	256,114	88,612	344,726	(b) 212,320 including fittings.	72,500	284,820	A.B. 114,372†	-	Bellerophon.
Wholly	13 Oct. 1864	ditto	ditto	212,167	63,602	275,769	221,400 including fittings.	57,000	278,400	A.B. 66,964†	-	Lord Clyde.
ditto	27 May 1865	ditto	ditto	236,197	68,279	304,476	221,400 including fittings.	64,000	285,400	A.B. 104,292†	Ship completed September 1867. Accounts given to 31 Mar. 1867.	Lord Warden.
Partially	18 June 1867	Dec. 1867	ditto	112,021	33,652	145,673	150,000 including fittings.	38,400	188,400	B. 58,640 †	Not completed. Accounts given to 31 March 1867.	Penelope.
ditto	14 Mar. 1865	Commissioned	ditto	144,003	39,810	183,813	97,745 including fittings.	38,400	136,145	A.B. 61,070†	-	Pallas.
Wholly	5 July 1864	ditto	ditto	122,423	24,016	146,439	76,160	20,800	96,960	A.B. 34,293	-	Favorite.

(a) The estimate for "Achilles" was for a hull like "Warrior's." It has since been completely armour-plated up to the main deck; a forecable has also been added to the original design; the armament has been entirely changed; and the cost has further been very considerably increased by the completion of the ship at Gillingham, owing to the want of the necessary dockyard accommodation.

(b) The estimate for "Bellerophon" did not include the present upper deck, top-gallant forecastle, and pilot tower.

† The estimated cost of vessels built by contract shows the price contracted for; it does not include the cost of the works required to be performed at the dockyards in fitting the vessels for sea. Expenses were incurred on ships marked † in 1860-67, and the incidental expenses for that year were estimated at the rate of 1865-66, and will therefore be liable to rectification when the true rate is ascertained.

RETURN RELATING TO IRON-PLATED SHIPS AND BATTERIES.

RETURN OF ALL IRON-PLATED SHIPS AND BATTERIES

NAMES.	By whom Designed.	Name of Builder.	Number of Guns.	Tonnage.	Load displacement in Tons.	Horse Power.	Name of Engine Maker.	If Engines on improved Expansive Plan and Surface Condensers.	Draught of Water Estimated.		Length		Breadth,		Hull, whether Wood or Iron.
									Forward.	Aft.	Between Perpendiculars.	Of Keel for Tonnage.	Extreme.	For Tonnage.	
AFLOAT—continued.															
Research	-	Mr. Fincham, Master Shipwright, H.M.'s Dockyard, Pembroke.	4	1,253	1,741	200	Watt	Surface condensers and superheaters, but do not work expansively.	<i>Ft. in.</i> *12 3 15 3	<i>Ft. in.</i> 15 10	<i>Ft. in.</i> 195 0	<i>Ft. in.</i> 168 3½	<i>Ft. in.</i> 38 6	<i>Ft. in.</i> 37 5	Wood
Enterprise	-	Ditto	4	993	1,350	160	Ravenhill	- ditto -	*12 4 15 10	15 10	180 0	152 11½	36 0½	34 11½	ditto
Waterwitch	-	Rear Admiral Elliot.	2	778	1,147	160	Dudgeon	Not so fitted	*11 1½ 11 7	11 7	162 0	142 9	32 1	32 1	Iron
Vixen	-	Controller's Department.	2	754	1,197	160	Maudslay	- ditto -	*10 5 11 5½	11 5½	160 0	134 10½	32 5	32 5	Wood and iron.
Viper	-	Ditto	2	737	1,072	160	Maudslay	- ditto -	*10 3 11 9	11 9	160 0	135 4½	32 0	32 0	Iron
Royal Sovereign	-	Mr. Cradock, Master Shipwright, H.M.'s Dockyard, Portsmouth.	5	3,765	5,080	800	Maudslay	- ditto -	*21 6 24 11	24 11	240 7	201 11½	62 2	59 2½	Wood
Prince Albert	-	Samuda Brothers	4	2,529	3,809	500	Humphreys	- ditto -	*18 4 20 0	20 0	240 0	206 4	48 1	48 1	Iron
Scorpion	-	Laird Brothers	4	1,833	2,660	350	Laird Bros.	- ditto -	*14 11 16 4	16 4	224 6	191 7½	42 4½	42 4½	ditto
Wivern	-	Ditto	4	1,899	2,625	350	Laird Bros.	- ditto -	*14 8 16 3	16 3	224 6	199 1½	42 4	42 4	ditto
BUILDING:															
Hercules	-	Mr. Thornton, Master Shipwright, H.M.'s Dockyard, Chatham.	12	5,226	8,530	1,200	Penn	Yes -	22 6 26 6	26 6	325 0	282 2½	59 0	59 0	ditto
Monarch	-	Ditto	6	5,100	8,164	1,100	Humphreys	Yes -	22 6 26 0	26 0	330 0	289 11½	57 6	57 6	ditto
Captain	-	Messrs. Laird and Captain Coles.	6	4,272	6,950	900	Laird	Yes -	22 6 23 6	23 6	320 0	283 4	53 3	53 3	ditto
Repulse	-	Mr. Ladd, Master Shipwright, H.M.'s Dockyard, Woolwich.	12	3,734	6,259	800	Penn	Not so fitted	25 0 26 6	26 6	252 0	214 10½	59 0	57 2	Wood
Audacious	-	Napier & Sons	14	3,774	5,895	800	Ravenhill	Yes -	21 6 22 6	22 6	280 0	243 4	54 0	54 0	Iron
Invincible	-	Ditto	14	3,774	5,895	800	Napier	Yes -	21 6 22 6	22 6	280 0	243 4	54 0	54 0	ditto
Bellona	-	Design not decided on.	—	—	—	—	—	—	—	—	—	—	—	—	—
FLOATING BATTERIES:															
Erebus	-	Controller's Department.	16	1,954	1,825	200	Napier	Not so fitted.	*8 9 8 9	8 9	186 8½	156 2	48 6	48 6	ditto
Terror	-	Ditto	16	1,971	1,844	200	Napier	- ditto -	*8 9 8 11	8 11	186 3	157 1½	48 8	48 6½	ditto
Thunderbolt	-	Samuda Brothers	16	1,973	1,825	200	Ravenhill	- ditto -	*8 9 8 9	8 9	186 11	157 10	48 5½	48 5½	ditto
Thunder	-	Mare & Co.	14	1,469	1,672	150	Ravenhill	- ditto -	*8 7 9 3	9 3	172 6	146 0	43 11	43 5	Wood

A. These amounts are for incidental expenses, as charged previously to 31 March 1864. See preceding Statement, paragraph marked A.

B. These amounts are for incidental expenses, as charged since 31 March 1864. See preceding Statement, paragraph B.

* The draught of water given for these ships is the actual load draught, that of other ships is the estimated draught of water.

N.B. In making out this Return as a continuation of Parliamentary Return, No. 526, of last Session, the following points must be understood:—The *estimated* expense of all the earlier designed ships did not include fitting for sea. The actual expense includes fitting for sea. In the accounts of cost in this Return there are several trifling variations from those given in the former. They arise from rectification of the accounts made since that Return was printed. The armament, dimensions, tonnage, &c. of some of the ships in this Return differ from those shown in the last; this arises from heavy guns having taken the place of light, from the measured tonnage of the ship as built being given instead of the calculated tonnage from the drawings; and in some cases from alterations and additions completed since the last Return was printed. The cost of ships not completed is given up to the date of the latest accounts in office. In the case of the converted ships, the first cost includes the whole amount of the expense incurred upon the ship prior to her conversion. The ships to which this applies are the "Royal Oak," "Prince Consort," "Caledonia," "Zealous," "Favorite," "Research," and "Enterprise."

BUILT, BUILDING, OR ORDERED TO BE BUILT—continued.

Whether wholly Armour-Clad or Partially.	Date when Launched, or probable Date of Launching.	Estimated Date of Completion ready for Commissioning.	If Built on Captain Coles' Cupola Plan, or Mr. Reed's Plan.	First Cost of Vessels now Complete, including Fittings.			Estimated First Cost of Vessels Building in Her Majesty's Dockyards and in Private Yards. †			Incidental and Establishment Charges (Hull and Engines).	R E M A R K S.	N A M E S.
				Hull, Exclusive of Incidental and Establishment Charges.	Engines, Exclusive of Incidental and Establishment Charges.	Total, Exclusive of Incidental and Establishment Charges.	Hull, exclusive of Fittings.	Engines, exclusive of Fittings.	TOTAL.			
Partially	15 Aug. 1863	Commissioned	Mr. Reed's	56,734	10,125	66,859	56,250	9,350	65,600	£. A. 8,330	-	Afloat—cont ^d . Research.
ditto	9 Feb. 1864	- ditto	- ditto	51,762	8,676	60,438	44,000	8,400	52,400	A. B. 7,917	-	Enterprise.
ditto	28 June 1866	- ditto	No -	43,080	13,642	56,722	37,334	13,321	50,655	B. 2,161 †	{ Completed 6 July 1867 Accounts given up to 31 March 1867.	Waterwitch.
ditto	18 Nov. 1865	- ditto	Mr. Reed's	46,331	7,869	54,200	38,894	7,680	46,574	B. 3,353 †	-	Vixen.
ditto	21 Dec. "	- ditto	- ditto	42,287	7,611	49,898	36,498	7,430	43,928	B. 2,577 †	{ Completed 6 July 1867 Accounts given up to 31 March 1867.	Viper.
Wholly	8 Mar. 1864 Undocked after conversion.	- ditto	Captain Coles'	125,663	1,724	127,387	66,000	Engines on board.	66,000 hull.	A. B. 22,790	The amounts here shown are for the conversion of the ship, and do not include her original cost as a line-of-battle ship.	Royal Sovereign.
ditto	23 May 1864	- ditto	- ditto	177,619	24,129	201,748	113,187	22,000	135,187	A. B. 24,099	-	Prince Albert.
ditto	4 July 1863	- ditto	- ditto	{ The hull and engines were purchased to- gether for one sum }			- This vessel was purchased.			B. 531	-	Scorpion.
ditto	29 Aug. "	- ditto	- ditto	- ditto	- ditto	115,995(c)	-	ditto	-	B. 606	-	Wivern.
Partially	Feb. 1868	July 1868	Mr. Reed's	-	-	-	320,000	81,000	401,000	-	-	BUILDING: Hercules.
Wholly	June "	Dec. "	Captain Coles'	-	-	-	300,000	66,000	366,000	-	-	Monarch.
ditto	Building in dock.	May 1869	- ditto	-	-	-	276,500	58,500	335,000	-	The contract price includes masts and yards, &c., and fitting the ship for sea, except providing rigging, armament, and stores. This estimate is for converting the hull and fitting engines removed from the "Prince of Wales," and does not include the cost of hull before conversion, or the value of the engines.	Captain. Repulse.
Partially	April 1868	Sept. 1868	Mr. Reed's	-	-	-	179,274 including fittings.	5,226	184,500	-	-	Andacious.
ditto	Dec. "	Aug. 1869	- ditto	-	-	-	170,357	52,300 including fittings.	222,657	-	-	Invincible.
ditto	Mar. 1869	Nov. "	- ditto	-	-	-	170,357	51,400 including fittings.	221,757	-	-	Bellona.
—	—	—	—	—	—	—	—	—	—	—	—	FLOATING BATTERIES:
Wholly	19 April 1856	-	No -	{ 70,539 not completed for sea }	11,500	82,039	70,344	10,500	80,844	-	-	Erebus.
ditto	26 April "	Commissioned	No -	69,226	11,500	80,726	50,804	11,000	61,804	-	-	Terror.
ditto	22 April "	-	No -	{ 68,630 not completed for sea }	11,600	80,230	68,370	11,600	79,970	-	-	Thunderbolt.
ditto	17 April 1855	-	No -	49,433	10,343	59,776	42,233	8,625	50,858	-	-	Thunder.

A. B. These amounts are for incidental expenses, as charged both before and after 31 March 1864.

(b and c) The excess in the cost of the "Wivern" over that of the "Scorpion" arises from the alterations made in the former at Captain Coles' suggestion.

The first cost of the "Prince Consort" was less than that of her sister ships, partly because the fittings and alterations, which experience at sea showed to be desirable in this ship have been carried out upon other ships before they proceeded to sea, and so increased the first cost. The cost of the "Caledonia" has been also increased by the addition of a poop and forecastle, by a change of armament and rig, by cutting scuttles through the armour plates, by fitting the ship for a flag officer, and by various minor changes connected with the comfort of the crew and with the ventilation of the ship. The first cost of the "Ocean" has been increased by alterations in her armament, cutting scuttles through the armour plating, &c. The first cost of the "Royal Alfred" has been increased by a total change of armament, armour plating, and fitting as a flag ship. The first cost of the "Lord Warden" has been increased by a total change of armament and various fittings. † The estimated cost of vessels built by contract shows the price contracted for, it does not include the cost of the works required to be performed at the dockyards in fitting the vessels for sea. ‡ Expenses were incurred on ships marked † in 1866-67, and the incidental expenses for that year were estimated at the rate of 1865-66, and will therefore be liable to rectification when the true rate is ascertained.

IRON-PLATED SHIPS AND BATTERIES.

RETURNS of all IRON-PLATED SHIPS and
BATTERIES Built, Building, or ordered to be
Built (in continuation of Parliamentary Paper,
No. 526, of Session 1866).

(*Mr. Laird.*)

Ordered, by The House of Commons, to be Printed,
16 August 1867.

565.

Under 2 oz.

491

LANCASHIRE AND CHESHIRE STEAM COALS.

RETURN to an Order of the Honourable The House of Commons,
dated 23 July 1867;—for,

COPY “of the REPORT of Messrs. *Nicoll* and *Lynn*, to the Admiralty, of the
Trials at *Wigan* of the STEAM COALS of *South Lancashire* and *Cheshire*.”

Admiralty, }
15 August 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

REPORT of the Trials at *Wigan* of the STEAM COALS of *South Lancashire* and *Cheshire*.

Sir,

Wigan, 16 July 1867.

1. IN obedience to the orders of the Lords Commissioners of the Admiralty, dated the 31st May 1867, directing us to proceed to *Wigan* to witness and report upon the trials of the smokeless steam coals of the South Lancashire and Cheshire Coal Association, we beg to state that we have performed this service, taking the document of the association forwarded to us by the Admiralty (and which we return herewith) as the basis of our inquiry, and to report as follows:—

2. Upon our arrival at *Wigan*, we proceeded to the office of Mr. Maskell W. Peace, the secretary to the association, who directed us to the trial shed erected at the works of the *Wigan* Coal and Iron Company, situated about two miles from *Wigan*, where the experiments were to be carried on. We were here introduced to Dr. Richardson of Newcastle, who, in conjunction with Mr. Lavington E. Fletcher, of Manchester, had organised and conducted the previous extensive trials for the association.

3. In company with Dr. Richardson, we proceeded to examine the experimental boiler and feed tank, with the necessary fittings, &c. The boiler is a common type of the ordinary tubular class used in the Navy, and was made from drawings of a similar boiler now used for the testing of coals in Her Majesty's Dockyard, Keyham. It has two furnaces, the length of furnace bar being three feet, the width of furnaces 1 ft. 8 $\frac{5}{8}$ in., having half an inch between the bars for windage; the number of tubes 124 5-length feet, and 2 $\frac{1}{2}$ inches external diameter. The total heating surface in the tubes, furnaces, flues, &c., being 438·47 sq. ft., with an area of fire grate surface of 10·3 sq. ft. The fire doors are perforated upon the plan adopted by Mr. Wye Williams for the admission of air. The furnaces are fitted with hanging brick bridges from the crowns, in addition to the vertical brick bridges on which the bars rest. The draught of the chimney and flame box is measured by two syphon glass tubes, partly filled with water, one end of each tube being open to the air, and the other ends being in connection, one with the chimney and the other with the flame box; the difference between the level of the water in the syphon tubes indicating the strength of the draught.

4. The tank for supplying the boiler has an area of 50 sq. ft., with a depth of six feet, the bottom of the tank being nearly level with the water-line of the boiler, a 2-inch pipe and cock connecting them. The feed cock being so regulated as to maintain the water in the boiler during the trials at a uni-

form level, the water feeding the boiler by its own gravity, a graduated scale marked in feet and inches is attached to the side of the tank on which an indicator is worked by an ordinary wooden float, for the purpose of marking the quantity of water passing into the boiler during the experiment.

5. Previous to beginning our experiments, the secretary of the association handed us a list of the coals to be tried, selected by the Government Inspectors of Mines, at the desire of the association.

6. List of Coals :—

Mr. Dickinson's District.

Worsley top four feet.	Six feet rams.
Upper Crumbouke.	Great seven feet.
Lower Crumbouke.	Yard (Blackrod).
Upper three yards.	

Mr. Higson's District.

From the Pemberton Little Delf, or two-feet mine, and Pemberton four-feet mine, where the two are so near together as to form one seam.

From the Haigh or Arley or Hindley Yard Mine.

From the Furnace Mine.

From the Bickerstaffe four feet or Blangate Mine.

From the Rushy Park and Little Delf Mines, worked simultaneously and mixed.

From the Ince three feet, four feet, and seven feet mines, worked simultaneously and mixed.

From the Arley Mine.

We enclose the list itself, along with the "statement by the secretary" by the members of the association who raise these different descriptions of steam coals.

7. The following day we had a preliminary trial for the purpose of showing how the former experiments had been conducted. As the results given in the document referred to in the beginning of this report were obtained with the present area of fire grate and arrangement of furnace, we retained the same intact for our trials. Previous to commencing an experiment, it was arranged that steam should be up, that the fires should be in good order, that 1,000 lbs. of coal should be burnt during each experiment, that the water in the boiler should be maintained at a constant uniform level, and that the whole of the cinders formed during the trial should be burned over again, and that the experiments should cease when all the 1,000 lbs. of coal had been consumed, and when the fires had come to be in the same state as at the commencement. The quantity of water evaporated during the trial, together with the amount of clinker, cinder, and soot, being carefully measured, weighed, and recorded.

8. The method of stoking was to keep the fires from 14 to 15 inches in thickness, and at every time of stoking the green coal was heaped up to the crown of the furnace in front and over the dead plate; any cinders which had fallen through the grate into the ash pit were also thrown on after the coals. At the next firing, the coals in front having burnt through, were pushed back by the shovel, and fresh coal again heaped on in front, and so on alternately with each furnace until the 1,000 lbs. of coal had been consumed. A smoke diagram is appended, showing the method of recording the smoke marks.

9. The atmospheric air admitted through the perforated furnace doors mixes with the gases of the coal distilling in front, and combustion ensues, whilst the mixed gases and air pass over the incandescent fuel. Should the furnace doors be kept open too long, or more air pass over or through the fires than is necessary, the hanging brick bridge being red hot prevents the cooling down that would otherwise take place, and also assists in maintaining the temperature of the gases for perfect combustion. This bridge also tends to make the flame reverberate in the flame box or combustion chamber where the heat will be better absorbed in consequence. It will be seen, by referring to our table of experiments, either with or without the blast or steam jet, that the smoke or products

of

of the coal, in most cases, were all burned, and in several of them not a vestige of smoke was visible; in fact, there was complete combustion. There are several boilers for stationary engines at the Wigan Coal Company's Works, fitted with fire grates worked by machinery, such as Jukes' revolving grate, and Wilson and Smith's smoke-consuming apparatus; and we have witnessed these on several occasions after stoking, and there was little or no smoke, or what appeared was of a light colour. It must, however, be remarked that while the above arrangement of grates was so successful in preventing formation of smoke, we noticed at the same time that not only at these works, but also in the neighbourhood, there were furnaces fitted with the common grates which, with random firing, vomited forth dense volumes of dark-coloured smoke immediately after stoking.

10. The whole of the coals of this district are of a hard and durable nature, consequently not liable to disintegration by the action of the weather; we were shown very large quantities which had been exposed at the pit's mouth for a considerable time, and which appeared to be in good condition, showing no signs of breaking up, nor will they easily pulverise by transit either for shipment or store, and like the Newcastle coal would be found well adapted for using up the small Welsh, which would otherwise fall through the bars and be thrown away with the ashes. The average cubical contents of the coals experimented on is 42·021 cubic feet per ton. For the method of obtaining this measurement, *see* Table No. 3 appended.

11. The results of the trials have been calculated according to the Admiralty formula adopted in all reports upon trials of coals made in the various dock-yards, and are put into a tabulated form accompanying this report, classified under two headings. The results of the same trials upon the printed forms of the association are also attached to our report.

12. Table 1. The mean results of the experiments of the table with the Lancashire and Cheshire steam coal show that 10·684 lbs. of water per pound of coal, and 48·305 cubic feet of water per hour have been evaporated from a temperature of 100° Fahrenheit, burning at the rate of 27·503 lbs. of coal per square foot of fire grate per hour. The results thus obtained exceed those stated in the document of the association, theirs being 10·1 lbs. of water per pound of coal, and 46·67 cubic feet of water evaporated per hour from a temperature of 100° Fahrenheit. During these experiments the mean temperatures were of the smoke box 402° Fahrenheit, and of the chimney 625° Fahrenheit. The strength of draught measured by the syphon gauges was $\frac{3}{8}$ th in. in the chimney, and $\frac{1}{4}$ in. full in the flame box. The mean result of the experiment noted in the last line of the Table, and made with a mixture of the Lancashire and Cheshire steam coal with the Welsh dust, in the proportion of two-thirds of the former to one-third of the latter, show that 10·753 lbs. of water per pound of coal and 41·29 cubic feet of water per hour have been evaporated from a temperature of 100° Fahrenheit.

13. Table 2 shows trials of the same coal with the steam jet. The steam for this jet was taken from a boiler adjacent at 30 lbs. pressure. The mean results of the experiments show that 10·174 lbs. of water per lb. of coal and 68·938 cubic feet of water per hour have been evaporated from a temperature of 100° Fahrenheit, burning at the rate of 41·894 lbs. of coal per hour per square foot of fire grate. During these experiments the mean temperature of the smoke box was 702° Fahrenheit. The strength of the draught measured by the syphon gauges was 1 in. for the chimney and $\frac{11}{16}$ in. in the flame box.

14. Here we would venture to remark that this method of stoking with heavy fires, using the short grates and bridges, &c., more especially when the blast or steam jet is used, might be injurious to the furnaces. At all events, there should be no seams or rivets above the grates, and the sides and crowns of the furnaces should be exceedingly well stayed, otherwise the great evaporation that takes place in the immediate vicinity of such heavy fires might sometimes have the effect of driving the water away from the plates, and causing them to get overheated, and bulging might then ensue.

15. Table 3 shows the method of obtaining the cubical contents of the coals experimented upon.

16. A tracing marked (A), shows the construction of the experimental boiler, and the general arrangement of the feed tank pipes, &c.; a diagram of the smoke marks sketches of the fire door, &c., and the furnaces, showing the method of firing, together with a tabulated statement of the heating surfaces, &c. contained in the boiler.

17. A tracing, marked (B), is appended, showing the longitudinal and vertical sections of the boilers of the screw steamer "Lindsay," with the data of her engines and boilers. And here we beg to record our obligations to the gentlemen of the association and their able secretary, for the facilities afforded us for gaining the requisite information for this report, such as enabling us to visit their collieries and examine the various works connected with them, and we would illustrate this by the following instance:—We had learned that the "Lindsay" screw collier, belonging to the Wigan Coal and Iron Company, had been fitted with the short grates and bridges, similar to the experimental boiler, and we suggested that a few hours' run with her would be a practical test of the steaming powers of the smokeless coal of this district; to this the Company immediately assented, and the vessel was placed at our disposal; accordingly on the 29th of June we proceeded to Liverpool, where we found the "Lindsay" with steam up, waiting for us. We proceeded to sea sufficiently far, so that the time occupied until the vessel got back to her moorings made a four hours' run. The stokers of the ship attended to the fires, which were worked in the manner described with the experimental boiler, namely, with heavy fires and firing in front. The steam was maintained at a pressure of 22 lbs., as shown by the gauge in the engine room, and was blowing off at the waste steam pipe all the time of the trial, and no smoke was visible during the whole of the four hours' run. At the conclusion of the four hours, we asked the stoker to put a rake through the fires, and fire up at random, and when this was done, some dark smoke soon issued from the top of the chimney, so that we take exception to the term "smokeless steam coal." As shown in this trial, and also at the Wigan Company's works (*see* paragraph 9), they are smokeless only when all the products of the coal are consumed; and this can be done and smoke prevented, even on board ship.

18. With reference to the paragraph of the document furnished by the association, stating that "these coals are more completely under the control of the stoker than other coals, &c.," we understand the meaning of this to be simply that short bars are more easily stoked than long, and that they are easier for the men to work. We think these are facts applicable to all coals, and not to these in particular.

19. In conclusion, these experiments, including that of the "Lindsay," show that when the products of the coal are consumed, which we consider can be easily done by careful firing, the coals of this district have a high evaporative value, combined with great speed, and are in every respect fit for Her Majesty's service.

We have, &c.

(signed) *Robert Nicoll*, R. N.,
Assistant to Chief Engineer, Keyham.

William Lynn,
Assistant Inspector of Machinery, Portsmouth.

The Secretary to the Admiralty.

THE SMOKELESS STEAM COALS OF SOUTH LANCASHIRE AND CHESHIRE.

THE small export of coal from this district compared with the area and produce of the coal field, induced the trade to institute an inquiry as to the cause. It has been proved that orders for export coming to Lancashire and Cheshire ports contain a condition that the coals to be supplied, should be those

on

on the "Admiralty list;" thus making the reputation of the coal, as a commercial product, to depend upon its presence or absence from a list compiled by the Admiralty authorities. The steam coals of this district are not to be found there, and are consequently excluded from the export trade.

Mine owners and workers of this district are deprived of a market, and the Navy is shut out from the supply of steam coals offered by the third largest coal field in the kingdom.

To test the suitability of these coals for the steam Navy, the coal trade instituted a series of experiments. The boilers and fittings employed were exact reproductions of those used in the Navy, and were built from plans furnished by dockyard officials, with the sanction of the Admiralty.

The result has proved that the steam coal of this district is distinguished by the following characters:

1st. Hardness and durability, with the power of resisting the action of the weather.

2nd. Smokelessness, even when the fires are driven as hard as possible.

3rd. Great evaporative power and remarkable speed.

4th. The facility with which it can be used to work up the duff or small refuse Welsh coal, invariably arising from exposure to climate.

5th. That it is more completely under the control of the stoker than other steam coals, and materially lightens the labour of the men.

These experiments have all been conducted strictly in accordance with Admiralty rules, and by a Government stoker who had never used Lancashire coal until he commenced to work at these trials.

The following details will prove the value of the coal as compared with other steam coal:

1st. The average of all the experiments at Keyham with Hartley and hand-picked Welsh coals was 9·41 lbs. of water evaporated per lb. of coal from 100° Fahrenheit with a total evaporation of 36·50 cubic feet of water per hour.

9·41.
36·50.

2nd. The average of the steam coals of this district, screened, and not hand-picked, was 10·10 lbs. of water evaporated per lb. of coal from 100° Fahrenheit with a total evaporation of 46·67 cubic feet of water per hour.

10·10.
46·67.

Making a gain in favour of the steam coals of this district of nearly 10 per cent. in power and of above 25 per cent. in speed.

3rd. The results in some experiments were as high as 11·77 lbs. of water per lb. of coal, with a total evaporation of 76·65 cubic feet of water per hour.

11·77.
76·65.

The experiments have been made indiscriminately with all kinds of Lancashire and Cheshire coals, and under every possible condition, so as to elicit the truth.

The number of experiments made up to this date is upwards of 450, spread over a period of 18 months.

Where similar experiments have been made with the coals of Northumberland and Durham and South Wales, the Admiralty has sent down engineer officers to inspect the boilers and apparatus, to repeat the experiments, and to report generally on the whole question. As, for instance, Messrs. Miller and Taplin visited Newcastle pursuant to an order of the Admiralty of 1st June 1858, to report on the Elswick experiments. Mr. Taplin and Mr. Lynn visited Cardiff to test the Welsh experiments pursuant to instructions from the Admiralty, dated 8th December 1858; and Mr. Taplin reported on the whole question in February 1859.

The coalowners of South Lancashire and Cheshire have been refused, but are now again pressing the Admiralty to concede a similar privilege to verify the experiments at Wigan, and they propose to meet all the expense of such an inquiry without any cost to the Government.

SOUTH LANCASHIRE and CHESHIRE COAL ASSOCIATION.

Gentlemen,

Wigan, 4 June 1867.

I BEG to hand to you herewith a list of the steam coals of this district to be tried at the trial shed, Kirkless Hall.

They have been selected by Her Majesty's Inspectors of Mines for the district.

I have, &c.

To Messrs. Nicoll & Lynn.

(signed) *Maskell Wm. Peace.*
Secretary to the Association.

SOUTH LANCASHIRE and CHESHIRE COAL ASSOCIATION.

LIST of COALS selected by Her Majesty's Inspectors of Mines to be Tried for Steam Purposes, with the Names of the Proprietors Working the same, being Members of the South Lancashire and Cheshire Coal Association, who are desirous of having the Coals placed on the Admiralty List.

Name of Coal Seam.	Worked by
<i>Mr. Dickinson's District:</i>	
Worsley Top Four Feet - -	The Astley and Tyldesley Coal and Salt Company, Limited. The Trustees of the Duke of Bridgwater. The Clifton and Kersley Coal Company.
Upper Crumbouke - -	The Astley and Tyldesley Coal and Salt Company, Limited. The Trustees of the Duke of Bridgwater. The Clifton and Kersley Coal Company. Mr. James Diggle. Messrs. Andrew Knowles & Sons. The Tyldesley Coal Company.
Lower Crumbouke - -	The Astley and Tyldesley Coal and Salt Company, Limited. The Clifton and Kersley Coal Company. Messrs. Andrew Knowles & Sons. Messrs. John Fletcher and others.
Upper Three Yards - -	The Trustees of the Duke of Bridgwater. Messrs. Knowles & Hall.
Six Feet Rams - -	Messrs. Ackers, Whitley & Company. The Astley and Tyldesley Coal and Salt Company, Limited. The Trustees of the Duke of Bridgwater. The Clifton and Kersley Coal Company. Mr. James Diggle. Messrs. John Fletcher and others. Messrs. Knowles & Hall. Messrs. Andrew Knowles & Sons. The Tyldesley Coal Company. The Wigan Coal and Iron Company, Limited.
Great Seven Feet - -	Messrs. Ackers, Whitley & Company. The Trustees of the Duke of Bridgwater. The Clifton and Kersley Coal Company. Mr. James Diggle. Messrs. John Fletcher and others. Mr. John Fletcher (Ladysshore). The Tyldesley Coal Company. The Wigan Coal and Iron Company, Limited.
Yard (Blackrod) - -	The Trustees of the Duke of Bridgwater. The Wigan Coal and Iron Company, Limited. Messrs. Joseph Ridgway and others. The Arley Main Coal Company.

Name of Coal Seam.	Worked by
Mr. <i>Higson's</i> District: From the Pemberton Little Delf or Two Feet Mine, and Pemberton Four Feet Mine, where the two are so near together as to form one seam.	The Trustees of the Duke of Bridgwater. Messrs. Bromilow, Haddock & Company. Messrs. Richard Evans & Company. Mr. William Hayes. The Ince Hall Coal and Cannel Company. The Moss Hall Coal Company. The Norley Coal and Cannel Company. Messrs. Pearson & Knowles. The Wigan Coal and Iron Company, Limited.
Haigh or Arley, or Hindley Yard Mine.	The Trustees of the Duke of Bridgwater. Mr. James Darlington. Messrs. Richard Evans & Company. The Ince Hall Coal and Cannel Company. The Moss Hall Coal Company. The Norley Coal and Cannel Company. Messrs. Pearson & Knowles. Messrs. Joseph Ridgway and others. The Wigan Coal and Iron Company, Limited.
Furnace Mine - - - -	The Trustees of the Duke of Bridgwater. Messrs. Bromilow, Haddock & Company. Messrs. David Bromilow & Company. Messrs. Richard Evans & Company. The Ince Hall Coal and Cannel Company. The Moss Hall Coal Company. Messrs. Pearson & Knowles.
Bickerstaff Four Feet, or Blangate Mine.	Messrs. Bromilow, Foster & Company. The Wigan Coal and Iron Company, Limited.
Rushy Park and Little Delf Mines, worked simultaneously and mixed.	The Trustees of the Duke of Bridgwater. Messrs. David Bromilow & Company. Messrs. Richard Evans & Company. The Ince Hall Coal and Cannel Company. Messrs. Pilkington Brothers. The Sankey Brook Coal Company, Limited. The Wigan Coal and Iron Company, Limited.
Ince Three Feet, Four Feet, and Seven Feet Mines, worked simultaneously and mixed.	Messrs. Ackers, Whitley & Company. The Trustees of the Duke of Bridgwater. Mr. William Hayes. The Ince Hall Coal and Cannel Company. The Moss Hall Coal Company. The Norley Coal and Cannel Company. Messrs. Pearson & Knowles. The Wigan Coal and Iron Company, Limited.
Arley Mine - - - -	The Trustees of the Duke of Bridgwater. Mr. James Darlington. Mr. James Diggle. Messrs. Richard Evans & Company. The Ince Hall Coal and Cannel Company. The Moss Hall Coal Company. The Norley Coal and Cannel Company. Messrs. Pearson & Knowles. Messrs. Joseph Ridgway and others. The Wigan Coal and Iron Company, Limited.

4 June 1867.

(signed) *Maskell Wm. Peace,*
Secretary to the Association.

THE SMOKELESS STEAM COALS OF SOUTH

SHEET No. 1.—LANCASHIRE COAL.—WITHOUT STEAM JET.

ADMIRALTY BOILER.—LOW LEVEL ^A BARS, with Inverted Bridge in

OBSERVATIONS :		1.	2.	3.	4.	5.	6.	7.
No. of experiment - - - -		Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers
By whom recorded, Messrs. Nicoll and Lynn.								
Date of experiment - - - -		Mon. 10 June	Tues. 11 June	Wed. 12 June	Thur. 13 June	Mon. 17 June	Tues. 18 June	Wed. 19 June
Description of coal used - - - -		Hindley Yard	Blackrod Yard	Pemberton 4ft.	Rushy Park	Worsley, 4ft.	Upper Crombouke.	Lower Crombouke.
Description of fire door - - - -		Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.
Ditto of dead plate - - - -		Closed	Closed	Closed	Closed	Closed	Closed	Closed
Ditto of fire bridge - - - -		Double inverted.	Double inverted.	Double inverted.	Double inverted.	Double inverted.	Double inverted.	Double inverted.
Index No. of sketch of bridge - - - -		No. 11	No. 11	No. 11	No. 11	No. 11	No. 11	No. 11
Dimensions of vent - - - -		20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.
Length of fire grate, thickness of bars, windage.		3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.
Proportion of aggregate windage to total area of grate.		·363	·363	·363	·363	·363	·363	·363
Character of firing - - - -		Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.
Position of damper - - - -		Full open	Full open	Full open	Full open	Full open	Full open	Full open
Vacuum in chimney - - - -		⅙ full	⅙ in.	⅙ in.	⅙ in.	⅙ in. bare	⅙ in. bare	⅙ in. full
Ditto in flame box - - - -		⅙ in. full	⅙ in.	⅙ in. full	⅙ in. full	⅙ in. full	⅙ in. full	⅙ in. bare
Temperature of smoke box - - - -		422°	412°	360°	374°	380°	389°	398°
Ditto of feed water - - - -		60°	65°	66°	66°	61°	62°	63°
Ditto of air - - - -		70°	80°	68°	64°	64½°	65°	63°
State of weather - - - -		Clear, fine	Clear, fine	White clouds	White clouds	Fine	Dull	Cloudy
RESULTS IN GROSS :								
Length of experiment - - - -		4 hours	3 h. 42 m.	3 h. 15 m.	3 h. 24 m.	3 h. 24 m.	3 h. 21 m.	3 h. 42 m.
Gross amount of water evaporated in inches off tank.		42	42	39	40	39	38	41
Gross weight of water evaporated in lbs. during trial.		10,938	10,938	10,156½	10,417	10,156½	9,896	10,677½
Gross weight of coals burnt to evaporate above.		1,000	1,000	1,000	1,000	1,000	1,000	1,000
Smoke marks during trial - - - -		0	2	32	6	4	11	4
Gross amount of ashes in lbs. - - - -		32	29	28	32	33	27	38
Gross amount of clinkers in lbs. - - - -		29	32	9	24	37	41	31
RESULTS REDUCED :								
Lbs. of water at 100 degrees evaporated per lb. of coal.		11·355	11·301	10·484	10·753	10·534	10·254	11·053
Cubic feet of water at 100 degrees evaporated per hour.		45·42	48·571	51·614	50·602	49·577	48·497	47·366
Lbs. of water at 100 degrees evaporated per hour.		2838·867	3054·476	3225·88	3162·656	3098·587	3031·086	2960·377
Lbs. of coals burnt per hour - - - -		250	270·27	307·69	294·11	294·11	298·507	270·27
Lbs. of water at 100 degrees evaporated per hour per square foot of fire grate.		275·28	296·191	312·812	306·68	300·46	293·92	287·06
Cubic feet of water at 100 degrees evaporated per hour per square foot of fire grate.		4·404	4·73	5·005	4·9	4·807	4·702	4·59
Lbs. of coals burnt per hour per square foot of fire grate.		24·24	26·208	29·83	28·52	28·52	28·94	26·208
Lbs. of coals added per stoke - - - -		28·57	30·303	35·71	32·25	35·71	35·71	30·303
Average Interval between stoking each furnace, in minutes.		13·72	13·46	13·92	10·075	14·57	14·35	13·46
Smoke marks per hour - - - -		0	·54	9·84	1·76	1·17	3·28	1·08
REMARKS :								
If ashes were used during trial - - - -		Ashes -	Ashes -	Ashes -	Ashes -	Ashes -	Ashes -	Ashes -
If bars were pricked during trial - - - -		Pricked -	Pricked -	Not pricked	Pricked -	Pricked -	Pricked -	Pricked -
If perforations of fire doors were constantly open or closed, or the two intermittently being closed immediately after stoking.		Intermittent	Intermittent	Intermittent	Intermittent	Intermittent	Intermittent	Intermittent
If furnaces were stoked alternately or simultaneously.		Alternate	Alternate	Alternate	Alternate	Alternate	Alternate	Alternate
If steam jet was used during trial - - - -		No jets	No jets	No jets	No jets	No jets	No jets	No jets

Fire doors opened a little to keep down smoke in all trials.

LANCASHIRE AND CHESHIRE.—TRIALS AT WIGAN.

SHEET No. 1.—LANCASHIRE COAL.—WITHOUT STEAM JET.

addition to Ordinary Vertical Bridge (*see* Sketch, marked (C.), at end).

8. Adm. Officers	9. Adm. Officers	10. Adm. Officers	11. Adm. Officers	12. Adm. Officers	13. Adm. Officers	14. Adm. Officers	15. Adm. Officers	16. Adm. Officers.
Thur. 20 June Upper 3 yards	Fri. 21 June Six feet rams	Mon. 24 June Furnace Mine	Tues. 25 June Bickerstaffe 4ft.	Wed. 26 June Ince mixed -	Thur. 27 June Haigh or Har- ley yard.	Mon. 1 July Great 7 ft. -	Tues. 2 July Arley Mine -	Wed. 3 July. Hindley Yard and Welsh dust 2 yards to 1 Welsh dust. Sketch No. 7, P. area 16·75 sq.in.
Sketch No. 7, P. area 16·75 sq. in. Closed - -	Sketch No. 7, P. area 16·75 sq. in. Closed - -	Sketch No. 7, P. area 16·75 sq. in. Closed - -	Sketch No. 7, P. area 16·75 sq. in. Closed - -	Sketch No. 7, P. area 16·75 sq. in. Closed - -	Sketch No. 7, P. area 16·75 sq. in. Closed - -	Sketch No. 7, P. area 16·75 sq. in. Closed - -	Sketch No. 7, P. area 16·75 sq. in. Closed - -	Closed.
Double in- verted.	Double in- verted.	Double in- verted.	Double in- verted.	Double in- verted.	Double in- verted.	Double in- verted.	Double in- verted.	Double inverted.
No. 11 -	No. 11 -	No. 11 -	No. 11 -	No. 11 -	No. 11 -	No. 11 -	No. 11 -	No. 11.
20 $\frac{5}{8}$ in. × 9 in. " × 9 in. " × 15 in.	20 $\frac{5}{8}$ in. × 9 in. " × 9 in. " × 15 in.	20 $\frac{5}{8}$ in. × 9 in. " × 9 in. " × 15 in.	20 $\frac{5}{8}$ in. × 9 in. " × 9 in. " × 15 in.	20 $\frac{5}{8}$ in. × 9 in. " × 9 in. " × 15 in.	20 $\frac{5}{8}$ in. × 9 in. " × 9 in. " × 15 in.	20 $\frac{5}{8}$ in. × 9 in. " × 9 in. " × 15 in.	20 $\frac{5}{8}$ in. × 9 in. " × 9 in. " × 15 in.	20 $\frac{5}{8}$ in. × 9 in. " × 9 in. " × 15 in.
3ft. × 1 in. × $\frac{1}{2}$ in.	3ft. × 1 in. × $\frac{1}{2}$ in.	3ft. × 1 in. × $\frac{1}{2}$ in.	3ft. × 1 in. × $\frac{1}{2}$ in.	3ft. × 1 in. × $\frac{1}{2}$ in.	3ft. × 1 in. × $\frac{1}{2}$ in.	3ft. × 1 in. × $\frac{1}{2}$ in.	3ft. × 1 in. × $\frac{1}{2}$ in.	3 ft. × 1 in. × $\frac{1}{2}$ in.
·363	·363	·363	·363	·363	·363	·363	·363	·363
Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Random fires, 12 in. thick.
Full open -	Full open -	Full open -	Full open -	Full open -	Full open -	Full open -	Full open -	Full open.
$\frac{3}{8}$ in. - -	$\frac{1}{8}$ in. bare -	$\frac{3}{8}$ in. - -	$\frac{3}{8}$ in. - -	$\frac{3}{8}$ in. full -	$\frac{3}{8}$ in. - -	$\frac{7}{16}$ in. - -	$\frac{3}{8}$ in. - -	$\frac{3}{8}$ in. full.
$\frac{1}{2}$ in. full.	$\frac{1}{2}$ in. full.	$\frac{1}{2}$ in. full	$\frac{1}{2}$ in. - -	$\frac{1}{2}$ in. - -	$\frac{1}{2}$ in. full -	$\frac{1}{2}$ in. full -	$\frac{1}{2}$ in. full -	$\frac{1}{2}$ inch.
407° 63° 62 $\frac{1}{2}$ °	392° 63° 59 $\frac{1}{2}$ °	394° 64° 63 $\frac{1}{2}$ °	426° 63° 65°	394° 65° 71°	440° 66° 70°	420° 66° 70°	423° 66° 56 $\frac{1}{2}$ °	368° 66° 69 $\frac{1}{2}$ °
Fine - -	Dull - -	Dull - -	Fine - -	Clear, fine -	Clear, fine -	Cloudy -	Wet - -	Dull, wet.
3 h. 27 m. 40	3 h. 21 m. 38	3 h. 24 m. 37	3 h. 35 m. 38	3 h. 18 m. 38	3 h. 42 m. 42	3 h. 27 m. 39	4 h. 6 m. 42	4 h. 10 m. 40
10,417	9,896	9,635 $\frac{1}{2}$	9,896	9,896	10,938	10,156 $\frac{1}{2}$	10,938	10,417
1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
0 23 14	0 34 27	3 90 40	0 32 5	3 32 28	0 27 32	0 18 9	3 27 21	6 34 29
10·783	10·244	9·965	10·244	10·224	11·29	10·484	11·29	10·753
50·011	48·928	46·893	45·745	49·575	48·625	48·622	44·061	41·298
3125·717	3058·025	2930·95	2859·108	3098·462	3051·578	3038·877	2753·863	2581·1306
289·85 303·09	298·507 296·53	294·11 284·21	279·09 277·24	303·03 300·45	270·27 295·80	289·85 294·65	243·902 267·04	240·38 250·29
4·84	4·74	4·54	4·43	4·807	4·73	4·71	4·27	4·004
28·17	28·94	28·52	27·06	29·09	26·208	28·17	23·65	23·27
34·48 14·29	35·71 14·35	37·037 15·13	34·48 14·89	33·33 13·2	31·25 13·87	34·48 14·26	32·25 15·88	33·33 16·66
0·	0·	·88	0·	·909	0·	0·	·73	1·2
Ashes - - Pricked - Intermittent -	Ashes - - Pricked - Intermittent	Ashes - - Pricked - Intermittent	Ashes - - Not pricked - Intermittent -	Ashes - - Pricked - Intermittent	Ashes - - Pricked - Intermittent	Ashes - - Not pricked - Intermittent	Ashes - - Pricked - Intermittent	Ashes. Pricked. Intermittent.
Alternate -	Alternate -	Alternate -	Alternate -	Alternate -	Alternate -	Alternate -	Alternate -	Alternate.
No jets -	No jets -	No jets -	No jets -	No jets -	No jets -	No jets -	No jets -	No jets.

For Dr. Richardson and Self,
Lavington E. Fletcher.

THE SMOKELESS STEAM COALS OF SOUTH LANCASHIRE

SHEET No. 2.—LANCASHIRE COAL.—WITH STEAM JET. - - - - -

ADMIRALTY BOILER.—LOW LEVEL ^A BARS with Inverted

OBSERVATIONS :								
No. of experiment - - - -	1.	2.	3.	4.	5.	6.	7.	
By whom recorded, Messrs. Nicoll & Lynn.	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers
Date of experiment - - - -	Thur., 4 July	Thur., 4 July	Fri., 5 July -	Fri., 5 July -	Mon., 8 July	Mon., 8 July	Tues., 9 July	
Description of coal used - - -	Hindley Yard	Blackrod Yard	Pemberton 4 ft.	Rushey Park	Worsley 4 ft.	Upper Crumbouke.	Lower Crumbouke.	
Ditto - fire door - - - -	Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.	Sketch No. 7, P. area 16'75 sq. in.	
Ditto - dead plate - - - -	Closed -	Closed -	Closed -	Closed -	Closed -	Closed -	Closed -	
Ditto - fire bridge - - - -	Double inverted.	Double inverted.	Double inverted.	Double inverted.	Double inverted.	Double inverted.	Double inverted.	
Index No. of sketch of bridge - -	No. 11	No. 11	No. 11	No. 11	No. 11	No. 11	No. 11	
Dimensions of vent - - - -	20 $\frac{1}{2}$ in. $\times$ 9 in.	20 $\frac{1}{2}$ in. $\times$ 9 in.	20 $\frac{1}{2}$ in. $\times$ 9 in.	20 $\frac{1}{2}$ in. $\times$ 9 in.	20 $\frac{1}{2}$ in. $\times$ 9 in.	20 $\frac{1}{2}$ in. $\times$ 9 in.	20 $\frac{1}{2}$ in. $\times$ 9 in.	
Length of fire grate, thickness of bars, windage.	" $\times$ 9 in.	" $\times$ 9 in.	" $\times$ 9 in.	" $\times$ 9 in.	" $\times$ 9 in.	" $\times$ 9 in.	" $\times$ 9 in.	
Proportion of aggregate windage to total area of grate.	" $\times$ 15 in.	" $\times$ 15 in.	" $\times$ 15 in.	" $\times$ 15 in.	" $\times$ 15 in.	" $\times$ 15 in.	" $\times$ 15 in.	
Character of firing - - - -	3ft. $\times$ 1in. $\times$ $\frac{1}{2}$ in.	3ft. $\times$ 1in. $\times$ $\frac{1}{2}$ in.	3ft. $\times$ 1in. $\times$ $\frac{1}{2}$ in.	3ft. $\times$ 1in. $\times$ $\frac{1}{2}$ in.	3ft. $\times$ 1in. $\times$ $\frac{1}{2}$ in.	3ft. $\times$ 1in. $\times$ $\frac{1}{2}$ in.	3ft. $\times$ 1in. $\times$ $\frac{1}{2}$ in.	
Position of damper - - - -	363	363	363	363	363	363	363	
Vacuum in chimney - - - -	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	
Ditto in flame box - - - -	Full open -	Full open -	Full open -	Full open -	Full open -	Full open -	Full open -	
Temperature of smoke box - - -	1 in. -	1 in. -	1 in. -	1 in. full -	1 in. -	1 in. -	1 in. -	
Ditto - of feed water - - - -	$\frac{1}{8}$ in. -	$\frac{1}{8}$ in. -	$\frac{1}{8}$ in. -	$\frac{1}{8}$ in. full -	$\frac{1}{8}$ in. -	$\frac{1}{8}$ in. -	$\frac{1}{8}$ in. -	
Ditto - of air - - - -	710°	712°	705°	730°	720°	660°	675°	
State of weather - - - -	64°	66°	67°	66°	63°	67°	70°	
	71°	67 $\frac{1}{2}$ °	64°	59 $\frac{1}{2}$ °	65 $\frac{1}{2}$ °	68°	79°	
	Cloudy	Bright—Clear	Cloudy	Cloudy	Bright	Bright	Clear	
RESULTS IN GROSS :								
Length of experiment - - - -	2 h. 36 m.	2 h. 27 m.	2 h. 12 m.	2 h. 16 m.	2 h. 20 m.	2 h. 20 m.	2 h. 30 m.	
Gross amount of water evaporated in inches off tank.	40	38	37	38	33	35	39	
Gross weight of water evaporated in lbs. during trial.	10,417	9,896	9,635 $\frac{1}{2}$	9,896	9,896	9,115 $\frac{1}{2}$	10,156 $\frac{1}{2}$	
Gross weight of coals burnt to evaporate above.	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Smoke marks during trial - - -	0	0	0	0	0	0	0	
Gross amount of ashes in lbs. - -	28	21	20	36	27	36	32	
Ditto - of clinkers in lbs. - -	28	32	20	23	29	28	27	
RESULTS REDUCED :								
Lbs. of water at 100 degrees evaporated per lb. of coal.	10'773	10'215	9'936	10'215	10'244	9'4006	10'444	
Cubic feet of water at 100 degrees evaporated per hour.	66'298	66'7116	72'268	72'3201	70'347	64'553	66'844	
Lbs. of water at 100 degrees evaporated per hour.	4143'644	4109'48	4516'772	4520'011	4396'731	4034'604	4177'796	
Lbs. of coals burnt per hour - - -	384'615	408'163	454'54	442'47	433'476	433'476	400'	
Lbs. of water at 100 degrees evaporated per hour per square foot of fire grate.	401'807	404'312	437'9	412'122	426'35	391'23	405'11	
Cubic feet of water at 100 degrees evaporated per hour per square foot of fire grate.	6'42	6'46	7'007	7'012	6'82	6'25	6'48	
Lbs. of coals burnt per hour per square foot of fire grate.	37'29	39'58	44'07	42'906	42'03	42'03	38'78	
Lbs. of coals added per stoke - - -	35'71	37'037	38'46	38'46	38'46	40'	37'037	
Average interval between stoking each furnace, in minutes.	11'14	10'9	10'15	10'46	10'77	11'21	11'12	
Smoke marks per hour - - - -	0'	0'	0'	0'	0'	0'	0'	
REMARKS :								
If ashes were used during trial - -	Ashes - -	Ashes - -	Ashes - -	Ashes - -	Ashes - -	Ashes - -	Ashes - -	
If bars were pricked during trial - -	Not pricked	Not pricked	Not pricked	Not pricked	Not pricked	Pricked -	Not pricked	
If perforations of fire doors were constantly open or closed, or the two intermittently being closed immediately after stoking.	Intermittent	Intermittent	Intermittent	Intermittent	Intermittent	Intermittent	Intermittent	
If furnaces were stoked alternately or simultaneously.	Alternate -	Alternate -	Alternate -	Alternate -	Alternate -	Alternate -	Alternate -	
If steam jet was used during trial - -	Steam jet -	Steam jet -	Steam jet -	Steam jet -	Steam jet -	Steam jet -	Steam jet -	

N.B.—In all the above experiments the steam

AND CHESHIRE.—TRIALS AT WIGAN—continued.

- - - SHEET No. 2.—LANCASHIRE COAL.—WITH STEAM JET.

Bridge in addition to ordinary Vertical Bridge.

8.	9.	10.	11.	12.	13.	14.	15.	16.
Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers	Adm. Officers.
Tues., 9 July -	Wed., 10 July	Wed., 10 July	Thur., 11 July	Thur., 11 July	Fri., 12 July	Sat., 13 July -	Fri., 12 July -	Sat., 13 July.
Upper 3 yards	Six feet rams -	Furnace mine	Bickerstaff 4 ft.	Ince mixed -	Haigh Yard -	Great 7 ft. -	Arley mine -	Mostyn coal.
Sketch No. 7, P. area 16·75 sq. in.	Sketch No. 7, P. area 16·75 sq. in.	Sketch No. 7, P. area 16·75 sq. in.	Sketch No. 7, P. area 16·75 sq. in.	Sketch No. 7, P. area 16·75 sq. in.	Sketch No. 7, P. area 16·75 sq. in.	Sketch No. 7, P. area 16·75 sq. in.	Sketch No. 7, P. area 16·75 sq. in.	Sketch No. 7, P. area 16·75 sq. in.
Closed - -	Closed - -	Closed - -	Closed - -	Closed - -	Closed - -	Closed - -	Closed - -	Closed.
Double in- verted.	Double in- verted.	Double in- verted.	Double in- verted.	Double in- verted.	Double in- verted.	Double in- verted.	Double in- verted.	Double in- verted.
No. 11 - -	No. 11 - -	No. 11 - -	No. 11 - -	No. 11 - -	No. 11 - -	No. 11 - -	No. 11 - -	No. 11.
20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.	20½ in. × 9 in. " × 9 in. " × 15 in.
3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.	3ft. × 1in. × ½ in.
·363	·363	·363	·363	·363	·363	·363	·363	·363
Careful fires 14 in. thick.	Careful fires 14 in. thick.	Careful fires 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.	Careful fires, 14 in. thick.
Full open -	Full open -	Full open -	Full open -	Full open -	Full open -	Full open -	Full open -	Full open.
1 in. bare -	1 in. - -	1 in. full -	1 in. - -	1 in. - -	1½ in. - -	1 in. - -	1 in. - -	1 in. - -
¾ in. bare -	¾ in. full -	1½ in. - -	¾ in. - -	¾ in. full -	¾ in. - -	¾ in. - -	¾ in. - -	¾ in. - -
740°	675°	705°	700°	726°	675°	725°	650°	725°
70°	70°	70°	70°	70°	71°	70°	71°	70°
76°	74½°	74°	80°	84½°	81½°	75½°	81°	66½°
Clear - -	Fine - -	Dull - -	Bright - -	Bright - -	Bright - -	Dull - -	Bright - -	Dull—Wet.
2 h. 18 m. 37	2 h. 20 m. 35	2 h. 21 m. 38	2 h. 21 m. 39	2 h. 9 m. 37	2 h. 30 m. 41	2 h. 3 m. 37	2 h. 48 m. 41	2 h. 24 m. 37
9,635½	9,115½	9,896	10,156½	9,035½	10,677½	9,035½	10,677½	9,635½
1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
0	0	0	0	0	0	0	0	0
29	22	44	18	34	37	24	36	30
11	24	45	8	30	31	12	29	37
99·08	93·73	10·176	10·444	9·908	10·969	9·908	10·969	9·908
68·93	64·37	69·287	71·111	73·739	70·207	77·336	62·683	66·053
4308·138	4023·164	4330·47	4444·46	4608·706	4387·958	4833·521	3917·82	4128·631
434·782	433·476	425·532	425·532	465·116	400·	487·804	357·142	416·66
417·76	390·12	420·89	430·97	440·904	425·49	468·705	379·23	400·35
6·68	6·24	6·71	6·89	7·15	6·807	7·49	6·01	6·405
42·16	42·03	41·26	41·26	45·102	38·78	47·205	34·63	40·404
38·46	38·46	38·46	41·66	38·46	33·33	41·66	33·33	34·48
10·61	10·76	10·84	11·75	9·92	10·	10·25	11·2	9·94
0·	0·	0·	0·	0·	0·	0·	0·	0·
Ashes - -	Ashes - -	Ashes - -	Ashes - -	Ashes - -	Ashes - -	Ashes - -	Ashes - -	Ashes.
Not pricked -	Not pricked -	Not pricked -	Not pricked -	Pricked - -	Pricked - -	Pricked - -	Pricked - -	Pricked.
Intermittent -	Intermittent -	Intermittent -	Intermittent -	Intermittent -	Intermittent -	Intermittent -	Intermittent -	Intermittent.
Alternate -	Alternate -	Alternate -	Alternate -	Alternate -	Alternate -	Alternate -	Alternate -	Alternate.
Steam jet -	Steam jet -	Steam jet -	Steam jet -	Steam jet -	Steam jet -	Steam jet -	Steam jet -	Steam jet. -

jet was at 30 lbs. pressure per square inch.

For Dr. Richardson and Self,
Livingston E. Fletcher.

REPORT OF THE TRIALS AT WIGAN OF THE

TABLE of EXPERIMENTS on the STEAM COALS of

No. of Trial.	DESCRIPTION of COAL.	Date of Trials.	Lbs. of Water Evaporated per Lb. of Coal.		Cubic Feet of Water Evaporated per Hour.		Per Centage of				Temperature of			Time of	
			Calculated at Temperature of Feed.	Calculated at Temperature of 100°.	Calculated at Temperature of Feed.	Calculated at Temperature of 100°.	Clinker.	Ash.	Soot.	TOTAL.	Water in Boiler.	Feed Water.	Atmosphere.	Lighting Fires.	Steam up.
TABLE I.—WITHOUT STEAM JET.	1 Hindley Yard - - - -	1867: 10 June	10-938	11-355	43-75	45-42	1-03	2-13	·33	4-39	° 212	° 60	° 70	noon. 12	p.m. 12.30
	2 Blackrod Yard - - - -	11 "	10-938	11-301	47-29	48-87	2-13	1-93	·6	4-06	212	65	80	a.m. 9.30	a.m. 9.50
	3 Pemberton, Little Delf, or 4 ft. -	12 "	10-156	10-484	50-001	51-614	·6	1-86	·33	2-79	212	66	68	10.0	10.30
	4 Rushy Park and Little Delf -	13 "	10-417	10-753	49-007	50-602	1-6	2-13	·56	4-29	212	66	64	9.10	9.50
	5 Worsley 4 ft. - - - -	17 "	10-156	10-534	47-79	49-57	2-46	2-2	·23	4-89	* 60 212	61	64½	p.m. 12-16	
	6 Upper Crumbouke - - - -	18 "	9-896	10-254	47-42	48-49	2-74	1-8	·2	4-74	130 212	62	65	a.m. 9.50	a.m. 10.0
	7 Lower Crumbouke - - - -	19 "	10-677	11-053	46-17	47-36	2-06	2-53	·26	4-85	114 212	63	63	10.0	10.17
	8 Upper 3 Yards - - - -	20 "	10-417	10-783	48-31	50-011	·93	1-52	·23	2-68	116 212	63	62½	9.55	10.20
	9 Six Feet Rams - - - -	21 "	9-896	10-244	47-26	48-928	1-8	2-26	·26	4-32	116 212	63	59½	9.55	10.21
	10 Furnace Mine - - - -	24 "	9-635	9-965	45-34	46-895	2-66	6-00	·26	8-92	61 212	64	63½	9.45	10.25
	11 Bickerstaffe 4 ft. - - - -	25 "	9-896	10-244	44-19	45-74	·33	2-13	·23	2-69	120 212	63	65	10.0	10.23
	12 Ince mixed - - - -	26 "	9-896	10-224	47-98	49-57	1-53	2-13	·26	3-92	81 212	65	71	9.25	9.55
	13 Haigh Yard - - - -	27 "	10-938	11-29	47-30	48-825	2-13	1-8	·23	4-16	116 212	66	70	9.0	9.25
	14 Great Seven Feet - - - -	1 July	10-156	10-484	47-102	48-622	·6	1-2	·26	2-06	68 212	66	72½	9.50	10.20
	15 Arley Mine - - - -	2 "	10-938	11-29	42-68	44-061	1-4	1-8	·23	3-43	122 212	66	56½	9.20	9.50
	16 Hindley Yard and Wesh Dust -	3 "	10-417	10-753	40-007	41-29	1-93	2-26	·53	4-72	129 212	66	69½	9.0	9.20
TABLE II.—WITH STEAM JET.	1 Hindley Yard - - - -	4 July	10-417	10-773	64-104	66-298	1-86	1-86	·53	4-25	84 212	64	71	a.m. 9.0	a.m. 9.30
	2 Blackrod Yard - - - -	4 "	9-896	10-215	64-62	66-71	2-13	1-4	·28	3-81	160 212	66	67½	p.m. 2.0	p.m. 2.30
	3 Pemberton, Little Delf, or 4 ft. -	5 "	9-635	9-936	70-07	72-26	1-33	1-33	·33	2-99	140 212	67	64	a.m. 8.10	a.m. 8.37
	4 Rushy Park and Little Delf -	5 "	9-896	10-215	70-06	72-32	1-53	1-73	·3	3-26	150 212	66	59½	p.m. 2.40	p.m. 3.0
	5 Worsley 4 ft. - - - -	8 "	9-896	10-244	67-95	70-34	1-93	1-8	·26	3-99	70 212	63	65½	a.m. 8.0	a.m. 8.30
	6 Upper Crumbouke - - - -	8 "	9-115	9-4	62-59	64-55	1-86	2-4	·23	4-49	141 212	67	68	p.m. 1.5	p.m. 1.30
	7 Lower Crumbouke - - - -	9 "	10-156	10-444	65-001	66-84	1-8	2-13	·33	4-26	130 212	70	79	a.m. 8.5	a.m. 8.35
	8 Upper 3 Yards - - - -	9 "	9-635	9-908	67-04	68-93	·74	1-93	·3	2-97	150 212	70	76	p.m. 1.5	p.m. 1.30
	9 Six Feet Rams - - - -	10 "	9-115	9-373	62-59	64-37	1-6	1-46	·3	3-36	132 212	70	74½	a.m. 8.5	a.m. 8.30
	10 Furnace Mine - - - -	10 "	9-896	10-176	67-37	69-28	3-00	2-93	·23	6-16	152 212	70	74	p.m. 1.5	p.m. 1.35
	11 Bickerstaffe 4 ft. - - - -	11 "	10-156	10-444	69-15	71-111	·53	1-2	·26	1-99	154 212	70	80	a.m. 8.0	a.m. 8.30
	12 Ince mixed - - - -	11 "	9-635	9-908	71-06	73-739	2-00	2-26	·23	4-49	160 212	70	84½	p.m. 1.20	p.m. 1.45
	13 Haigh Yard - - - -	12 "	10-677	10-969	68-33	70-207	2-06	2-46	·26	4-78	71 212	71	81½	a.m. 8.0	a.m. 8.30
	14 Great Seven Feet - - - -	13 "	9-635	9-908	75-203	77-336	·80	1-60	·23	2-63	140 212	70	75½	8.5	8.30
	15 Arley Mine - - - -	12 "	10-677	10-969	61-014	62-685	1-93	2-4	·26	4-59	90 212	71	81	p.m. 1.20	p.m. 1.45
	16 Mostyn Coal - - - -	13 "	9-635	9-908	64-23	66-05	2-46	2-00	·26	4-72	86 212	70	66½	p.m. 12.35	p.m. 12.55

* 60° Temperature of Water in boiler before fires were lighted. 212° Temperature of Water at commencement of Experiment.

† 356 lbs. of Coals burnt in raising steam. 556 lbs. of Coals burnt before Experiment commenced.

SOUTH LANCASHIRE AND CHESHIRE, at WIGAN.

Time of			Area of Fire Gate.	Weight of						Number of lbs. of Water evaporated off tank.	Distance of Bars apart.	Smoke marks during Trial.	REMARKS.
End of Trial.	Occupied in making Experiment.			Coals used in raising Steam.	Coals used in Experiment.	Coals burnt per Square Foot of Fire Gate per hour.	Clinker.	Ash.	Soot.				
p.m. 5.0	h. 4	m. 0	sq. ft. 10-3125	500	1,000	24-24	29	32	5	10,938	in. 1	0	
2.12	3	42	10-3125	500	1,000	26-208	32	29	9	10,938	$\frac{1}{2}$	2	Clinker small, but adhering firmly to fire grates.
2.15	3	15	10-3125	500	1,000	29-83	9	28	5	10,156 $\frac{1}{2}$	$\frac{1}{2}$	32	Clinker dry and easily removed from grates (better draught).
1.54	3	24	10-3125	500	1,000	28-52	24	32	8 $\frac{1}{2}$	10,417	$\frac{1}{2}$	6	Little clinker and easily removed from bars.
4.24	3	24	10-3125	556	1,000	28-52	37	33	3 $\frac{1}{2}$	10,156 $\frac{1}{2}$	$\frac{1}{2}$	4	Clinker adhering firmly to the bars.
2.21	3	21	10-3125	584	1,000	28-94	41	27	3	9,896	$\frac{1}{2}$	11	Clinker easily removed from bars.
2.42	3	42	10-3125	584	1,000	26-208	31	38	4	10,677 $\frac{1}{2}$	$\frac{1}{2}$	4	Clinker adhering to bars.
2.27	3	27	10-3125	556	1,000	28-17	14	23	3 $\frac{1}{2}$	10,417	$\frac{1}{2}$	0	Clinker easily removed from bars.
2.21	3	21	10-3125	556	1,000	28-94	27	34	4	9,896	$\frac{1}{2}$	0	Dry and little clinker easily removed from bars.
2.24	3	24	10-3125	584	1,000	28-52	40	30	4	9,635 $\frac{1}{2}$	$\frac{1}{2}$	3	Dry and easily removed from bars.
2.35	3	35	10-3125	556	1,000	27-03	5	32	3 $\frac{1}{2}$	9,896	$\frac{1}{2}$	0	Great amount of white limy ash. Clinker dry and easily removed from bars.
2.18	3	18	10-3125	584	1,000	29-38	23	32	4	9,896	$\frac{1}{2}$	3	Dry and little clinker easily removed.
1.42	3	42	10-3125	584	1,000	26-208	32	27	3 $\frac{1}{2}$	10,938	$\frac{1}{2}$	0	Clinker bad to remove from bars.
2.27	3	27	10-3125	584	1,000	28-17	9	18	4	10,156 $\frac{1}{2}$	$\frac{1}{2}$	0	Clinker easily removed from bars.
2.36	4	6	10-3125	528	1,000	23-65	21	27	3 $\frac{1}{2}$	10,938	$\frac{1}{2}$	3	Little clinker, easily removed.
2.10	4	10	10-3125	528	1,000	23-27	29	34	8	10,417	$\frac{1}{2}$	6	Clinker easily removed.
p.m. 12.36	h. 2	m. 36	10-3125	400	1,000	37-29	28	28	8	10,417	$\frac{1}{2}$	0	Proportions used were two yards to one Welsh dust. Clinker easily removed. Random firing; fires 12 inches thick.
4.57	2	27	10-3125	514	1,000	39-58	32	21	4 $\frac{1}{2}$	9,896	$\frac{1}{2}$	0	Clinker small, but adhering to bars.
12.42	2	12	10-3125	936	1,000	44-06	20	20	5	9,635 $\frac{1}{2}$	$\frac{1}{2}$	0	Clinker dry and easily removed.
5.46	2	16	10-3125	400	1,000	42-906	23	26	4 $\frac{1}{2}$	9,896	$\frac{1}{2}$	0	Clinker easily removed.
a.m. 11.50	2	20	10-3125	584	1,000	42-03	29	27	4	9,896	$\frac{1}{2}$	0	Clinker easier to remove than without jet.
p.m. 4.35	2	20	10-3125	500	1,000	42-03	28	36	3 $\frac{1}{2}$	9,115 $\frac{1}{2}$	$\frac{1}{2}$	0	Clinker dry and easily removed.
a.m. 11.45	2	30	10-3125	500	1,000	38-78	27	32	5	10,156 $\frac{1}{2}$	$\frac{1}{2}$	0	Clinker pasty and adhering to bars.
p.m. 4.18	2	18	10-3125	500	1,000	42-16	11	29	4 $\frac{1}{2}$	9,635 $\frac{1}{2}$	$\frac{1}{2}$	0	Clinker dry and easily removed.
a.m. 11.35	2	20	10-3125	500	1,000	42-03	24	22	4 $\frac{1}{2}$	9,115 $\frac{1}{2}$	$\frac{1}{2}$	0	Little clinker and easily removed.
p.m. 4.21	2	21	10-3125	500	1,000	41-26	45	44	3 $\frac{1}{2}$	9,896	$\frac{1}{2}$	0	Clinker dry and easily removed.
a.m. 11.21	2	21	10-3125	550	1,000	41-26	8	18	4	10,156 $\frac{1}{2}$	$\frac{1}{2}$	0	Clinker dry and easily removed.
p.m. 4.9	2	9	10-3125	500	1,000	45-102	30	34	3 $\frac{1}{2}$	9,635 $\frac{1}{2}$	$\frac{1}{2}$	0	Clinker adhering to bars.
a.m. 11.45	2	30	10-3125	528	1,000	38-78	31	37	4	10,677 $\frac{1}{2}$	$\frac{1}{2}$	0	Clinker adhering to bars.
11.3	2	3	10-3125	456	1,000	47-205	12	24	3 $\frac{1}{2}$	9,635 $\frac{1}{2}$	$\frac{1}{2}$	0	Clinker adhering to bars.
p.m. 4.48	2	48	10-3125	400	1,000	34-63	29	36	4	10,677 $\frac{1}{2}$	$\frac{1}{2}$	0	Clinker easily removed.
3.39	2	24	10-3125	500	1,000	40-404	37	30	4	9,635 $\frac{1}{2}$	$\frac{1}{2}$	0	Clinker easily removed.

Robt. Nicoll, R.N., Assistant to Chief Engineer, Keyham.

William Lynn, Assistant Inspector of Machinery, Portsmouth.

TABLE III.—CUBICAL CAPACITY of One Ton of the South Lancashire and Cheshire Coals, as per List.

COALS WEIGHED.	Dimensions of Coal in Box.			Cubical Capacity of One Ton.	COALS WEIGHED.	Weight of Coal in Waggon.	Length, Breadth, Depth of Coal in Waggon.			
	<i>Ft. in.</i>	<i>Ft. in.</i>	<i>Ft. in.</i>	<i>Cu. ft.</i>		<i>Tons cwt.</i>	<i>Ft. in.</i>	<i>Ft. in.</i>	<i>Ft. in.</i>	<i>Cu. ft.</i>
Equal quantities of 15 different coals on list.	3	6×3	6×3	5	41·85	Yard coal -	4	0	10	5×6 10×2 3=160·12
Ditto - - ditto - -	3	6×3	6×3	5½	42·36	Ditto - -	5	4	11	0×7 2×2 10=223·36
Ditto - - ditto - -	3	6×3	6×3	3	39·81	Strangeway's Hall	5	14	12	7×6 10×2 10=243·62
Equal quantities of four different coals.	3	6×3	6×3	5	41·85	Mostyn coal -	7	12	12	7×6 11×3 7=312·87
Ditto - - ditto - -	3	6×3	6×3	4½	41·34	Arley Mine -	6	7	12	7×7 1×3 2=282·25
Ditto - - ditto - -	3	6×3	6×3	4	40·83	Ditto - -	4	15	9	7×7 1×2 6½=183·84
						Haigh yard -	5	19	12	7×6 11×3 2½=279·23
						Ditto - -	6	5	12	7×6 11×3 2½=279·23
TOTAL capacity of Weighings - - - -				248·04	TOTAL capacity of Weighings - - - -				341·62	
Average capacity of One Ton - -				$\frac{248·04}{6} = 41·34$ <i>Cu. ft.</i>	Average capacity of One Ton - -				$\frac{341·62}{8} = 42·70$ <i>Cu. ft.</i>	

Note.—The following method was adopted to obtain the cubical capacity of a Ton of the Coals experimented upon:—A box 3ft. 6in. × ft. 6in. × 4ft. was made, and the coals from each heap were filled in to the weight of one ton. Each boxful was carefully levelled, and the distance of the coal from the top as carefully measured, the whole again being weighed by the steelyard. In the first three experiments an equal quantity, about 150lbs., was taken from the 15 different coals on the list; and in the remainder, five cwt. was taken from four different coals each time, and again re-weighed by the steelyard.

Note.—As a further means of verifying our experiments on the capacity of a ton of the coals experimented upon, several railway waggons with coal, on their transit for shipping and other purposes, were and weighed, the net taken, and the waggon and coal measured, with the results.

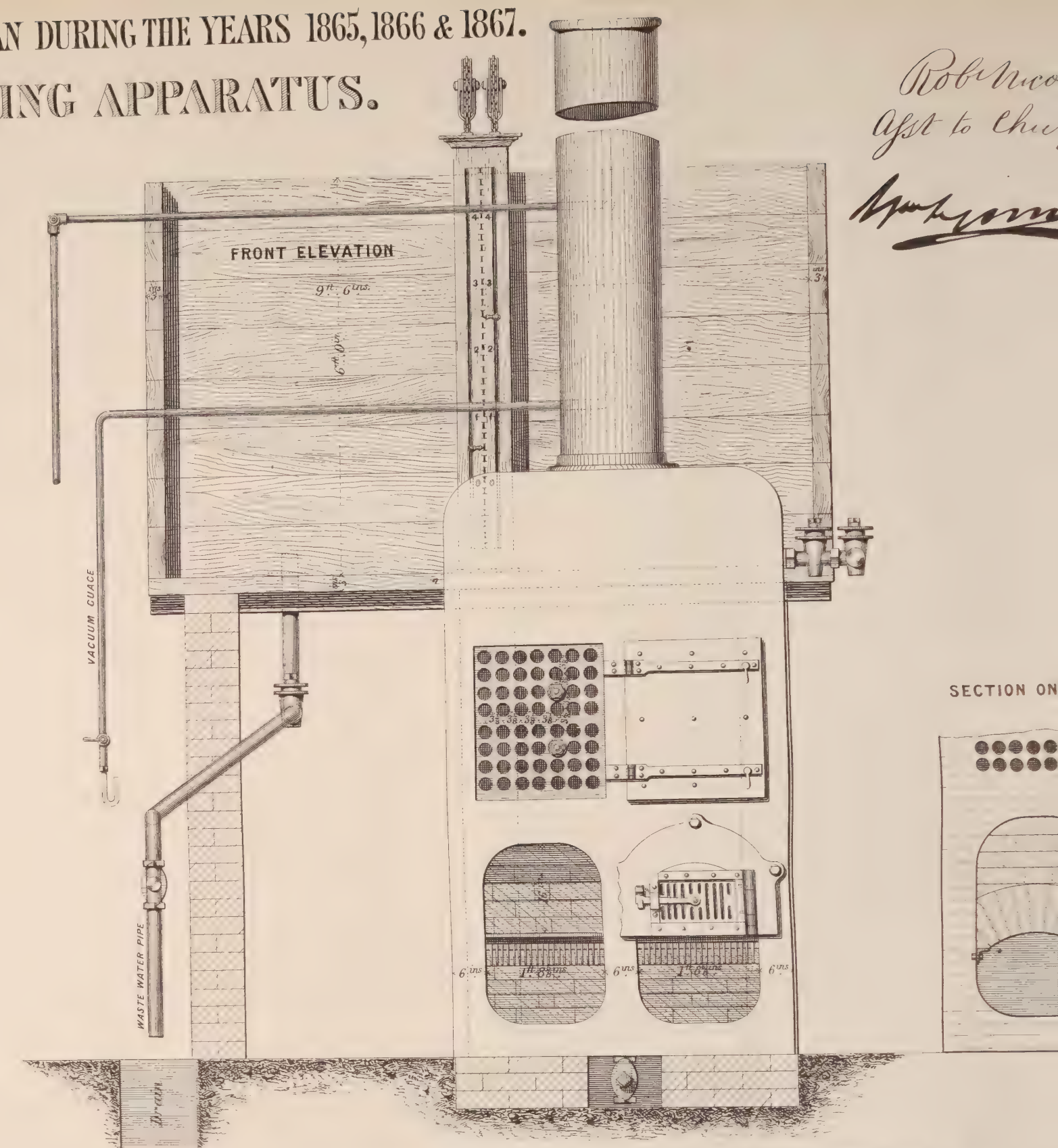
$$\text{Mean of average capacity of one Ton} = \frac{41·34 \times 42·702}{2} = 42·021 \text{ Cu. Ft.}$$

Robert Nicoll, R.N., Assistant to Chief Engineer, Keyham.
William Lynn, Assistant Inspector of Machinery, Portsmouth.

THE SOUTH LANCASHIRE AND CHESHIRE STEAM COAL TRIALS CONDUCTED AT WIGAN DURING THE YEARS 1865, 1866 & 1867.

COAL TESTING APPARATUS.

SECTION ON

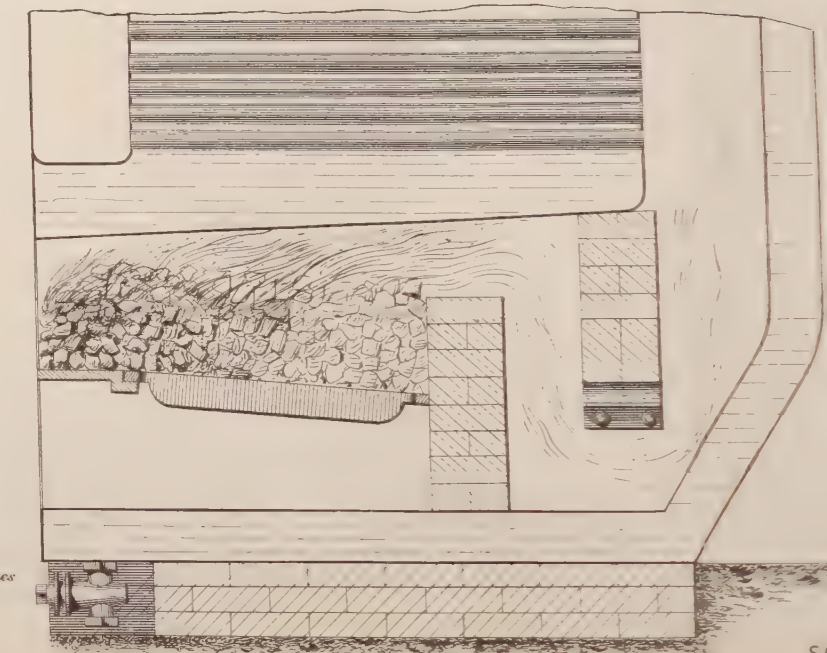


Very Light. *Light.* *Light Brown* *Brown.* *Black.* *Very Black*

SCALE 2 INCHES TO THE FOOT.

The image contains two technical drawings of mechanical components, likely parts of a press or mold. The upper drawing (left) shows a rectangular frame with a central slot and a handle. The lower drawing (right) shows a similar frame with a grid of small holes. A scale bar at the top indicates 2 inches to the foot.

Whole Heating Surface of Tubes.	<i>Sq. Feet.</i> 365·21	} <i>Sq. Feet.</i> 438·47
..... Ditto. ditto. of Furnaces.	26·5	
..... Ditto. ditto. of Flues.	46·76	
Whole Area through Tubes.		205·42
Whole Area through Fire Bars.		3·49
Whole Area over Bridges.		2·62
..... Ditto. of Grate Surface.		10·3125
..... Ditto. of Chimney.		1·767
Proportion of Fire Grate to Heating Surface.		42·51
..... Ditto. ditto. to Tube Area.		19·91
Area of Perforations in Fire Doors.		} 16·75 <i>Sq. Inches</i>
342 holes $\frac{1}{4}$ inch diameter.		



(B.)

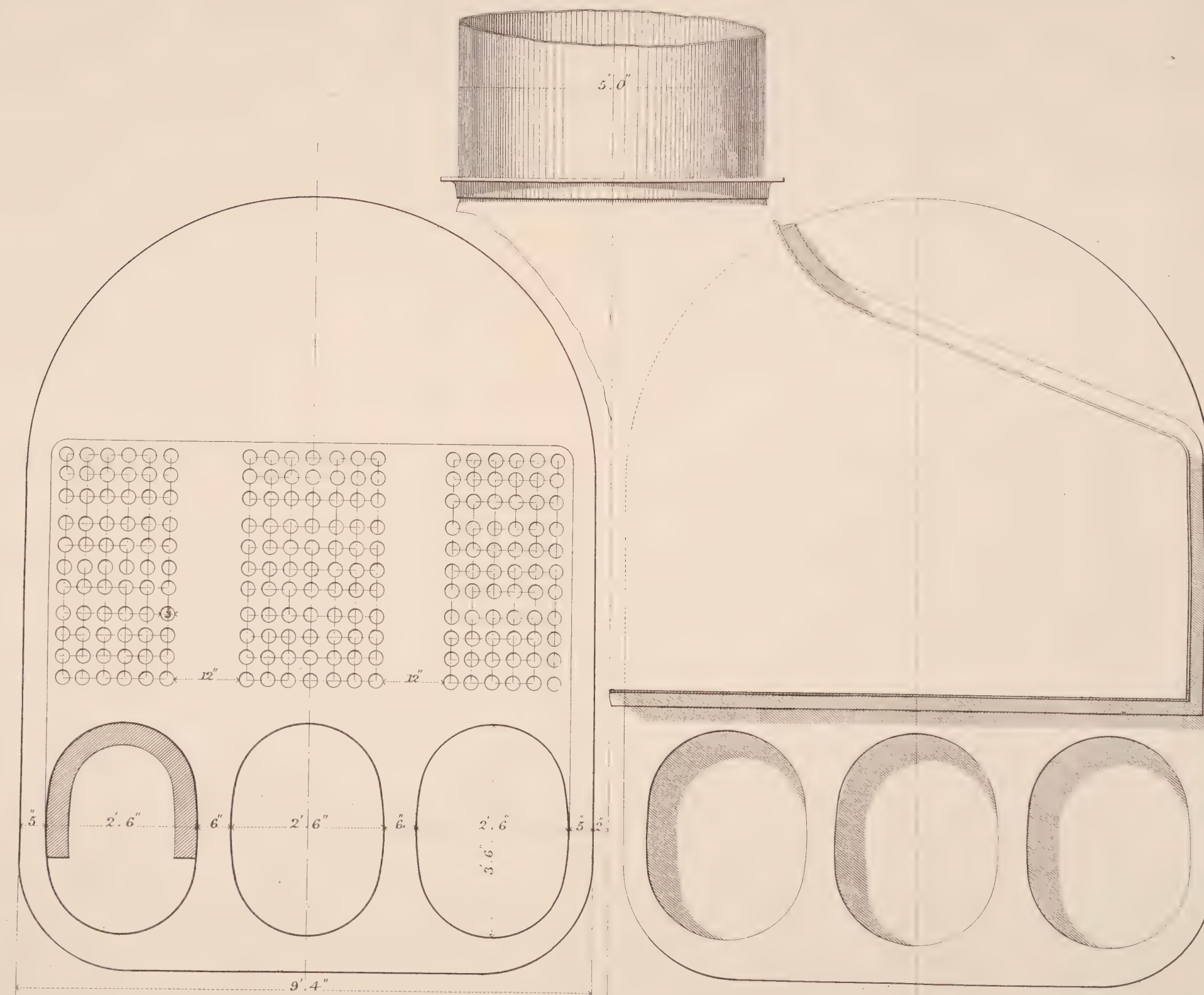
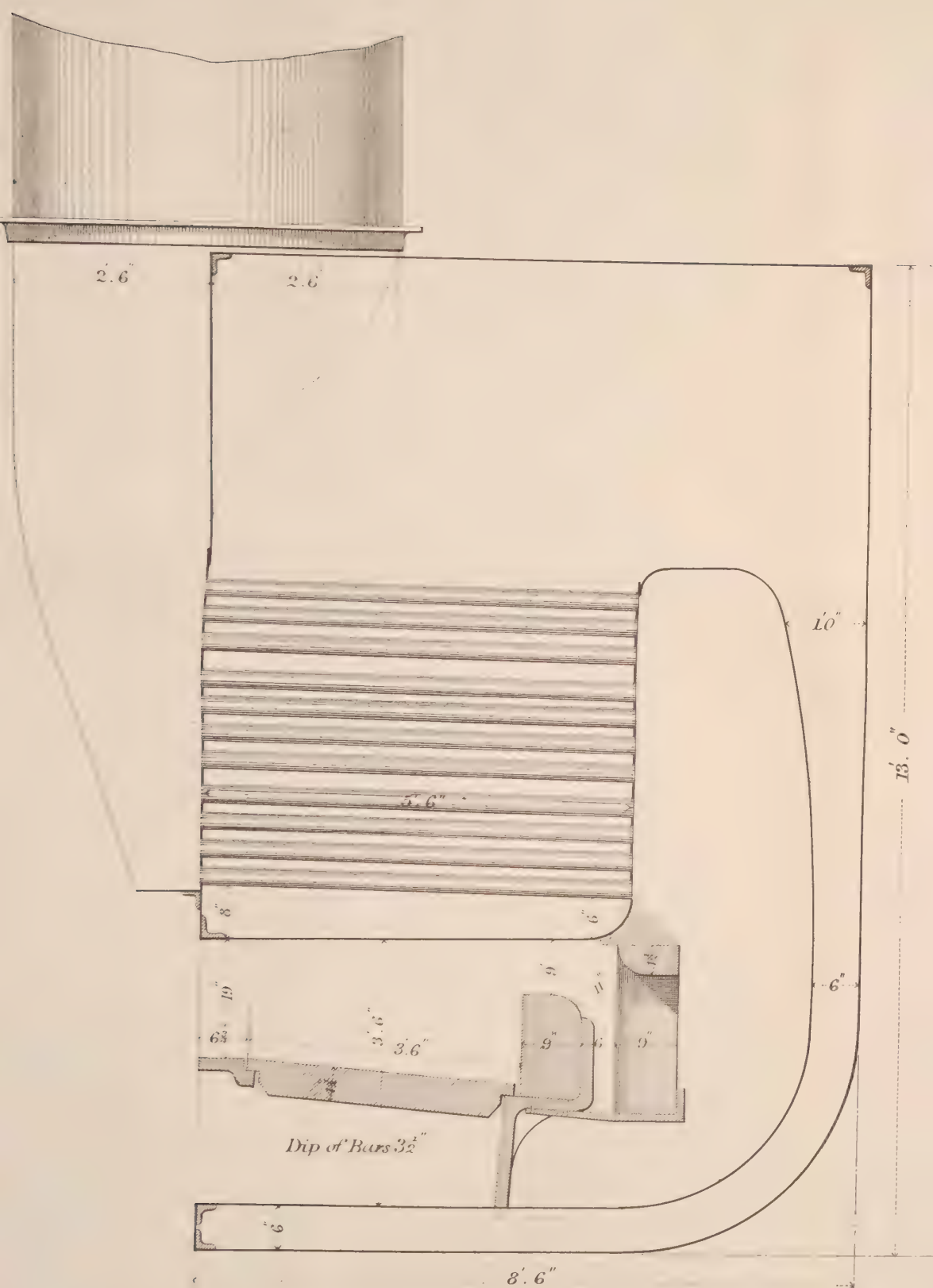
SKETCH OF BOILERS FOR SCREW STEAMER "LINDSAY."

Scale $\frac{1}{2}$ of an Inch = to a Foot.

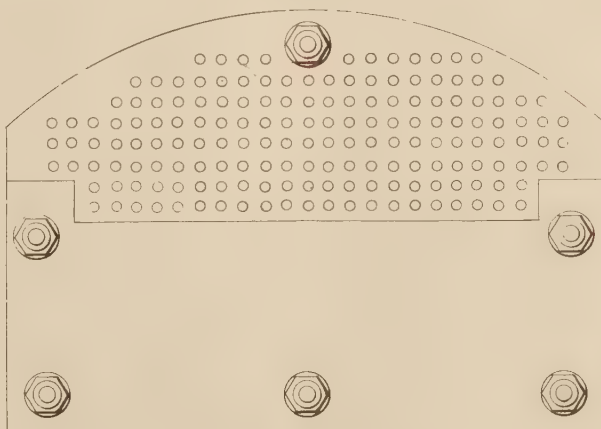
Robt Nicoll R.
Asst to Chas P. Long
Wm. Long.

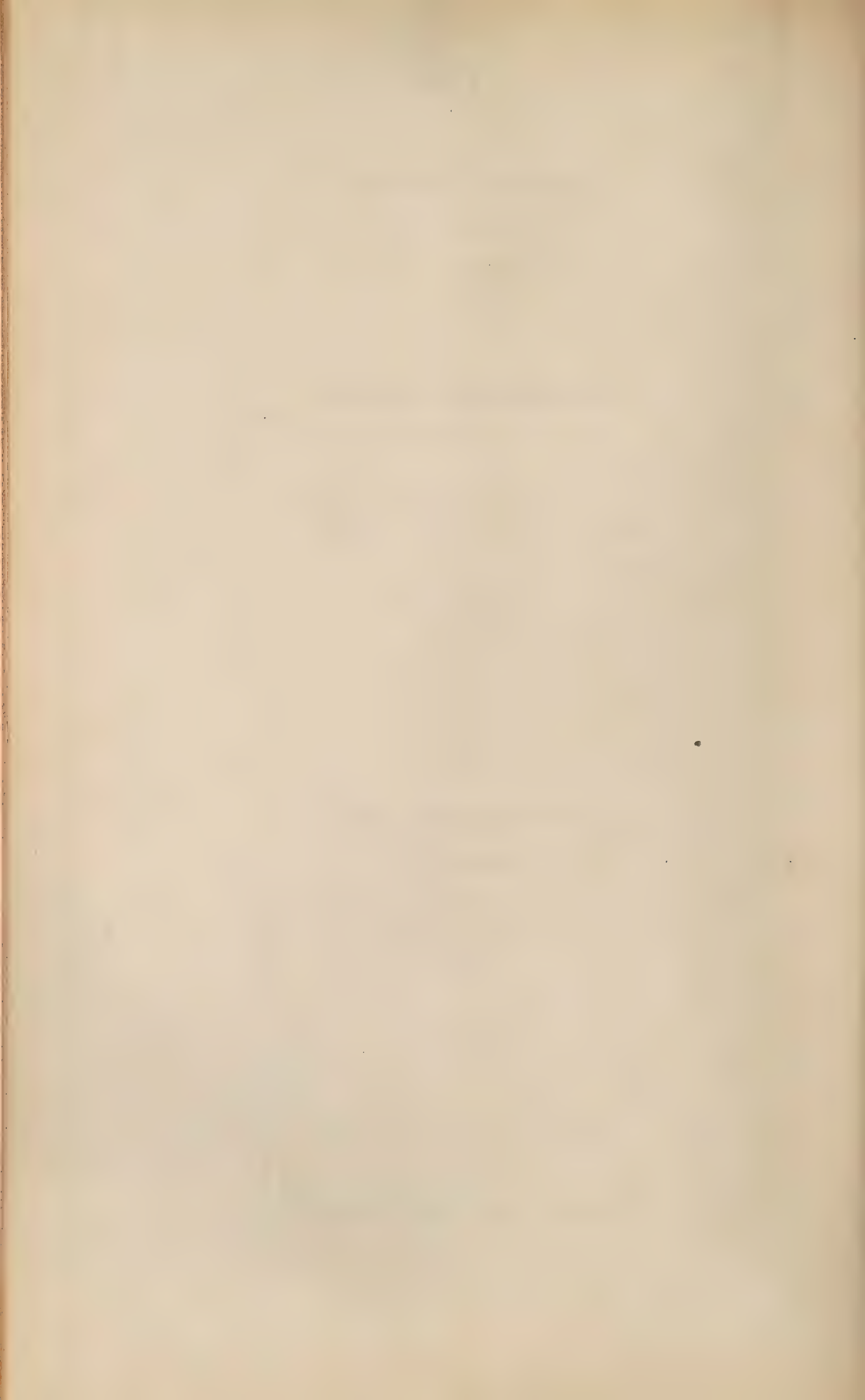
LEADING PARTICULARS OF BOILERS

Diameter of Cylinder.....
Length of Stroke.....
Revolutions.....
Nominal H.P. as per Admiralty.....
Indicated H.P. on trial (approx.).....
Load on Safety Valves.....
Average Pressure of Steam in L.....
Mean Pressure of Steam on Cyl.....
Consumption per hour (approx.).....
Consumption of Coal per Nominal H.P.....
ditto..... per Indicated H.P.....
Coals burnt per square foot of Grate.....
Area of Fire Grate Surface.....
Area of Fire Grate per Nominal H.P.....
Length between Perpendiculars.....
Breadth.....
Depth Extreme.....
Draft Forward.....
Draft Aft.....
Tonnage (O.M.).....
Diameter of Screw.....
Pitch of Screw.....
Area of Midship Section.....









LANCASHIRE AND CHESHIRE
STEAM COALS.

COPY of the REPORT of Messrs. *Nicoll and L*
to the Admiralty, of the Trials at *Wigan* o
STEAM COALS of *South Lancashire* and *Che*

(*Mr. Algernon Egerton.*)

Ordered, by The House of Commons, to be Printed
16 August 1867.

[*Price 2s. 4d.*]

563.

Under 4 o

513

LIEUTENANT BRAND.

RETURN to an Order of the Honourable The House of Commons,
dated 4 March 1867;—for,

COPY “ of Recent CORRESPONDENCE between the Board of Admiralty and
Lieutenant *Brand*, R.N.”

Admiralty, }
7 March 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

COPY of Recent CORRESPONDENCE between the Board of Admiralty and
Lieutenant *Brand*, R.N.

Lieutenant *Brand*, R.N., to the Secretary of the Admiralty.

My Lord,

9, Bedford place, London, 2 February 1867.

I HAVE the honour to report my arrival in England by the mail steamer “Seine,” the passengers from which were released from quarantine this day.

This being the first opportunity of doing so, I beg to offer a few remarks upon the causes which led to my supersession in the command of Her Majesty’s Ship “Delight.”

1. I regret exceedingly that by writing in a moment of great excitement, and under circumstances to which I ought to have been superior, because I could afford to be so, a letter to Mr. Buxton, M.P., I should so far have committed myself as to have fallen under the displeasure of their Lordships. I feel this the more acutely that their Lordships were pleased, no further back than the 6th July 1866, to express their approval of my conduct, under those circumstances in which Mr. Buxton aspersed it, and by their approval confirming that of the naval and military officers under whose immediate command I served in Jamaica, and notably of the Commander in Chief, who fully rewarded me for the exertions I was called upon to make. In the unfortunate position in which I find myself, it is some satisfaction to know that it was not in the direct course of duty, but in a matter apart from the service, that I have offended.

2. The circumstances, under which I wrote to Mr. Buxton, were these :

Being in the “Delight,” at Annatto Bay, in August last, the mail from England brought reports of the debates, and Mr. Buxton’s motions on Jamaica. In the report of Mr. Buxton’s speech, I read statements respecting myself which stung me to the quick, accusations of inhumanity, want of personal honour, and suggestions of levity and unfairness in my conduct as president of the court martial, which, spoken in the most public place in the world, where I could not answer him, in my absence, and under circumstances of great popular excitement, wounded and irritated me to such an extent, as to make me overstep the bounds of propriety, and to resent what I should have left unnoticed.

It might be said that conscious of not having deserved these strictures, and strong in the approval of my superiors, of the Commander in Chief, of their Lordships, and of all the authorities, civil and otherwise, in Jamaica, I might have allowed time to do me justice, and could have afforded to wait until an

undeserved storm had blown over. But these very facts drove the statements, with a deep sense of the injustice of them, home, and I smarted under a sense of injury which I could not stifle. In defence of the letters themselves, I cannot offer a word. I am very sorry that I wrote them, and I frankly admit they were improper both in tone and substance. Let me however mention, by way, not of justification, but of extenuation, that I was ill and suffering at the time I wrote, that I was alone without anyone to ask for a disinterested view of the position, or to advise me what course to take.

3. Under all the circumstances of the case, I trust their Lordships will see that, though I have admittedly acted with indiscretion, it has not been without great provocation, and that, in considering their attitude towards me at the present time, they will not forget my past services, and that the point in which I have erred is one outside the service, which I have ever sought to further and uphold to the very utmost of my ability, and with the approval of officers like Sir M. Seymour and Sir James Hope.

4. With these remarks I venture to appeal to their Lordships' consideration, and to hope they will be pleased to consider my heavy punishment in being superseded, as sufficient to meet the exigencies of the case, which I shall ever remember with regret.

Lord H. Lennox, M.P., Admiralty,
London.

I have, &c.
(signed) *H. Brand*,
Lieutenant, R.N.

The Secretary of the Admiralty to Lieutenant *Brand*, R.N.

Sir,

Admiralty, 5 February 1867.

I AM commanded by my Lords Commissioners of the Admiralty to acknowledge the receipt of your letter of the 2nd instant, reporting your arrival in England on being superseded from the "Albacore"; and I am to acquaint you that this letter, written in the becoming terms in which it is couched, has been received by their Lordships with satisfaction.

Lieutenant H. C. A. Brand, R.N.
9 Bedford Place.

I am, &c.
(signed) *W. G. Romaine*.

LIEUTENANT BRAND.

COPY of Recent CORRESPONDENCE between the
Board of Admiralty and Lieutenant Brand,
R. N.

(*Mr. Osborne.*)

*Ordered, by The House of Commons, to be Printed,
8 March 1867.*

517

NAVY (MARINE OFFICERS).

RETURN to an Order of the Honourable The House of Commons,
dated 28 March 1867;—for,

COPY “of any CORRESPONDENCE between the Treasury and the Admiralty
relative to the Increase in the Number of GENERAL OFFICERS of MARINES
(UNATTACHED PAY).”

Treasury Chambers, }
29 March 1867. }

GEORGE WARD HUNT.

— No. 1. —

Mr. *Briggs* to the Secretary of the Treasury.

Sir,

Admiralty, 7 December 1865.

I AM commanded by my Lords Commissioners of the Admiralty to request the sanction of the Lords Commissioners of the Treasury to their making a slight addition to the present fixed list of general officers in the Royal Marines.

The plan of the keeping the Artillery Officers, as a body, quite distinct from those of the Infantry Divisions, as laid down by Her Majesty's Order in Council of the 21st March 1862, did not include the general officers; and it has consequently never been completely carried out, there being no authority at present for bearing Artillery Generals. With that exception, however, the plan has worked well, and the result has been a saving of expense; but there is still an impediment to the fair flow of promotion in the corps generally, owing to the very limited number of general officers allowed in the Marines (which is a seniority corps) compared with the number allowed to the Army.

This will be seen by the following comparison:—

In the Army there are	-	-	260 general officers	-	-	to 185,000 men.
In the Royal Artillery there are	32	”	”	-	-	” 22,000 ”
In the Royal Engineers there are	16	”	”	-	-	” 5,000 ”
While in the Marines there are only	10	”	”	-	-	” 17,000 ”

This proportion is seriously detrimental to the efficiency of the corps, by rendering the promotion of the officers so slow.

Their Lordships, therefore, propose to add three to the present number of general officers of Marines, making 13 in all; and they would then allot them as follows:—

Ten to the Infantry exclusively, viz., two generals, three lieutenant generals, five major generals; and three to the Artillery, viz., one general, one lieutenant general, one major general.

Thus each branch of the Service would be enabled to provide for its own officers, who would look for promotion within their own corps; and the arrangements originally contemplated would be rendered complete.

The expense would not be more than 2,107 *l.* 17 *s.* 6 *d.* per annum, and considering the advantage which the service would derive from the adoption of this proposal, their Lordships trust that they may be authorised to incur the outlay.

I am, &c.

The Secretary of the Treasury.

(signed) *John Henry Briggs*,
Pro Secy.

— No. 2. —

The Secretary of the Treasury to the Secretary of the Admiralty.

Sir, Treasury Chambers, 20 December 1865.

THE Lords Commissioners of Her Majesty's Treasury have had before them Mr. Briggs' letter of the 7th instant, conveying the wish of the Lords Commissioners of the Admiralty that an addition of three to the present number of general officers of the Royal Marines might be sanctioned by this Board.

I am to state that, with every desire to concur with the Board of Admiralty in any measures having for their object improvement in the efficiency of the Marines, my Lords feel some difficulty in assenting to this proposal.

In Mr. Briggs' letter a comparison is instituted between the relative proportions of general officers to men in the Army, the Artillery, the Engineers, and the Marines; my Lords, indeed, cannot admit, considering the duties of the Marines and the amount of employment for general officers in connection with the corps, that such a comparison is conclusive; but while making this reservation, they find that, even considering the question merely as one of the flow of promotion from the higher regimental ranks, the Marines are already in a better position than the two other non-purchase corps.

The number of field officers below the rank of Colonel Commandant, are—

	<i>Number.</i>						
Artillery - - - - -	-	-	-	-	-	-	102
Engineers - - - - -	-	-	-	-	-	-	56
Marines - - - - -	-	-	-	-	-	-	25

Of Colonels Commandant, there are—

Artillery - - - - -	-	-	-	-	-	-	17
Engineers - - - - -	-	-	-	-	-	-	8
Marines - - - - -	-	-	-	-	-	-	5

These officers being in the Artillery and Engineers, general officers, and in the Marines, colonels.

Of general officers on unattached full pay or retired full pay of 25 *s.* per diem or more, there are, according to the Estimates for the current year—

				<i>Total.</i>
Artillery - - -	{	Unattached - - -	15	36
		Retired Full Pay - - -	21	
Engineers - - -	{	Unattached - - -	8	25
		Retired Full Pay - - -	17	
Marines - - -	{	Unattached - - -	10	28
		Retired Full Pay - - -	18	

The total numbers of general officers unattached or retired at 25 *s.* a day or more, and of colonels commandant in the three corps, are—

	<i>Number.</i>	<i>Average Pay.</i>	<i>Total.</i>
Artillery - - - - -	53	£. 693	£. 36,754
Engineers - - - - -	33	665	21,948
Marines - - - - -	33	715	23,607

My Lords, under these circumstances, must express their doubts whether they would be justified in assenting to an increase in the number of general officers of Marines.

G. Romaine, Esq., &c. &c.

I am, &c.
(signed) Hugh C. E. Childers.

— No. 3. —

The Secretary of the Admiralty to the Secretary of the Treasury.

Sir,

Admiralty, 18 October 1866.

MY Lords Commissioners of the Admiralty having had under their consideration the Treasury Letter of the 20th December 1865, in reply to a letter from this Department, dated the 7th of the same month, requesting the sanction of the Lords Commissioners of Her Majesty's Treasury to an addition of three to the present number of general officers of the Royal Marines, I am commanded by my Lords to transmit herewith a copy of a letter from the Deputy Adjutant General of Royal Marines, pointing out certain anomalies in the mode of comparison, adopted by the Lords of the Treasury, between the field officers of the Royal Artillery, Engineers, and Marines; and showing that the proportion of generals to other combatant officers is much smaller in the latter than in the two former seniority corps.

30 December 1865.

I am further desired to add, that after a very careful review of the subject, my Lords are still of opinion that the proposed addition of three general officers to the corps of Royal Marines would add materially to the efficiency of that service, being urgently required to carry out completely the separation of the Artillery and Infantry corps, sanctioned by the Order in Council of the 21st March 1862, and to prevent in future the clashing of the interests of these two branches of the service which has caused considerable irritation and ill-feeling, which it is most desirable to allay.

Under these circumstances, and looking to the advantages that would result from the adoption of the scheme, my Lords again most strongly recommend it to the favourable consideration of the Lords of the Treasury.

I am, &c.

(signed) *Henry G. Lennox*

The Secretary of
Her Majesty's Treasury.

Enclosure in No. 3.

Sir,

Royal Marine Office, 30 December 1865.

WITH reference to the communication from the Treasury, transmitted in your letter of the 21st instant (N.), I have the honour to observe that, from an imperfect acquaintance with the details of the Marine Service, as also perhaps from the want of uniformity in the Army and Navy Estimates, the Lords Commissioners of the Treasury appear to have made comparisons between the three seniority corps which are less favourable to the Royal Marines than their actual position will, on examination, be found to warrant.

In the first statement, the Colonels Commandant of Marines, who are regimental colonels in the actual command of each division, are classed with Colonels Commandant of Artillery and Engineers, who are general officers, and by omitting them, as also the two officers employed on the general staff, from the number of field officers, it is stated at 25, whereas the actual number is 32.

In the second statement, the five Generals of Marines, who are "colonels of divisions," are included in the 10 Unattached Generals, whereas the 17 Generals of Artillery, and eight Generals of Engineers, who hold the corresponding appointments of Colonels Commandant, are excluded from their numbers.

To render this comparative return correct, the number of Unattached Generals of Marines should either be shown as five, or the Colonels Commandant above enumerated should be added to the Unattached Generals of Artillery and Engineers.

I beg also to remark that in the number of retired Generals of Marines are included many officers who retired from the service as field officers with honorary rank.

In the third statement, by including the Colonels Commandant, who are field officers, as before explained under Statement No. 1, the number of Generals of Marines, unattached or retired, is given at 33 instead of 28.

I would, however, submit that a comparison between Generals and other officers cannot fairly be confined to the rank of field officers, the limited number of whom, in the Marines, is of itself adverse to the advancement of the junior grades, but that such comparison should, in seniority corps, include all combatant officers, each of whom has a right to anticipate eventual promotion to the highest ranks; and the accompanying Statement of the

4 CORRESPONDENCE:—GENERAL OFFICERS OF MARINES.

the proportion of Generals to all other officers in the three seniority corps, will, I apprehend, be found fully to bear out the moderate increase of three General Officers to the Royal Marines recommended by their Lordships' letter of the 7th instant, for the special object therein explained.

The Secretary to the Admiralty,
&c. &c. &c.
Whitehall.

I have, &c.
(signed) *G. C. Langley, D.A.G.*

Proportion of Generals to other Combatant Officers in the three Seniority Corps:

Royal Artillery	- - -	32 to about 934 or 1 to 29
„ Engineers	- - -	16 „ 442 „ 1 „ 28
„ Marines	- - -	10 „ 479 „ 1 „ 47

— No. 4. —

Mr. *G. A. Hamilton* to the Secretary of the Admiralty.

Sir,

Treasury Chambers, 1 November 1866.

THE Lords Commissioners of Her Majesty's Treasury have had before them your letter (N.) of the 18th October, submitting the propriety of adding three General Officers to the corps of Royal Marines, and my Lords have directed me to state, for the information of the Lords Commissioners of the Admiralty, that after considering the explanation furnished by the Deputy Adjutant General of Marines, in his letter of the 30th December last (of which a copy was forwarded in your letter), and relying upon the strong recommendation made by their Lordships of the Admiralty, my Lords will not withhold their consent to the proposed addition of three General Officers to the corps of Royal Marines (Artillery Branch).

The Secretary to the Admiralty.

I am, &c.
(signed) *Geo. A. Hamilton.*

NAVY (MARINE OFFICERS).

COPY of CORRESPONDENCE between the Treasury
and the Admiralty relative to the Increase in the
Number of GENERAL OFFICERS of MARINES
(UNATTACHED PAY).

(*Mr. Childers.*)

*Ordered, by The House of Commons, to be Printed,
1 April 1867.*

533

NAVAL PRIZE MONEY, &c.

AN ACCOUNT

SHOWING THE

RECEIPT AND EXPENDITURE

OF

NAVAL PRIZE, BOUNTY, SALVAGE, AND OTHER MONEYS,

BETWEEN THE

1st APRIL 1865 and the 31st MARCH 1866.

Admiralty,
12 February 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

(Presented pursuant to Act 27 & 28 Vict. c. 24.)

Ordered, by The House of Commons, to be Printed,
13 February 1867.

AN ACCOUNT showing the RECEIPT and EXPENDITURE of NAVAL PRIZE, BOUNTY,

(Prepared pursuant to Her Majesty's Order in Council of the

UNCLAIMED SHARE ACCOUNT PRIOR TO 1 APRIL 1865:							
	£.	s.	d.	£.	s.	d.	
To Balance of Unclaimed Prize, Bounty, Salvage, and other Moneys remaining in the hands of Her Majesty's Paymaster General at the Bank of England, on the 1st April 1865	6,081	-	2				
To Amount of Shares of Captain R. B. Oldfield, in Dhows, captured by Her Majesty's ship Lyra in 1858, (the Balances of which have been transferred to this Account,) refunded by the Treasury for re-payment to him	452	19	-				
To Amount of bills issued in former years, cancelled during the year, payment not having been demanded	229	5	10				
				6,763	5	-	
<i>Note.</i>—The sum of 36,000 <i>l.</i> (in addition to the 173,000<i>l.</i> referred to in the Annual Account for 1854–55, 233) has been transferred from this Account to the Consolidated Fund, between 1st April 1855 and 31st March 1865, and is available, under the 17th section of the Act 27 & 28 Vict. c. 24, for the payment of any claim on account thereof, which the Naval Prize Cash Balance may not be sufficient to meet.							
GOVERNMENT PER-CENTAGE ACCOUNT:							
To Amount of per-centage deductions from the net sums distributable, brought to account in the year	1,363	5	3				
To Amount of allowance for October and November 1865, paid to the late Sir R. M. Bromley, as Auditor, refunded on adjustment of his pension	50	-	-				
				1,413	5	3	
PRIZE FORFEITURES BY DESERTION, &c.:							
To Amount of shares forfeited by desertion, &c., brought to account during the year	-	-	-			228 18 7	
SLAVE AND TONNAGE BOUNTY:							
To Balance of the Proceeds of the Sale of certain Slave Vessels, including Slave and Tonnage Bounties awarded, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1865, and detailed in Paper (A.) annexed	24,858	4	7				
To Proceeds of the Sale of certain Slave Vessels captured by Her Majesty's ships, including the amount of Slave and Tonnage Bounties awarded, as per Paper (A.) annexed, paid to the Naval Prize Account of Her Majesty's Paymaster General at the Bank of England under Her Majesty's Order in Council of 1st November 1864 (pursuant to Act 27 & 28 Vict. c. 24)	8,957	17	11				
To Amount of Bills issued in former years, cancelled during the year, payment not having been demanded, and shares refunded	140	14	8				
	33,956	17	2				
To Amount of Shares of Captain R. B. Oldfield, in Dhows, captured by Her Majesty's ship Lyra, on 23rd August 1858, refunded by the Treasury for payment to him	111	17	1				
				34,068	14	3	
SALVAGE SERVICES RENDERED BY HER MAJESTY'S SHIPS:							
To Balance of Amount recovered from the Owners of certain Vessels for Salvage Services rendered to them by Her Majesty's ships, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1865 (including the sum of 350 <i>l.</i> deposit on account of the Iowa, by Her Majesty's ship Medusa)	4,578	3	7				
To Amount received from the Owners of certain Merchant Vessels for Salvage Services rendered by Her Majesty's ships, and paid to the Account of Her Majesty's Paymaster General at the Bank of England, between 1st April 1865 and 31st March 1866, under Her Majesty's Order in Council of 1st November 1864 (pursuant to Act 27 & 28 Vict. c. 24), viz.:—							
For Salvage Service rendered to the Atlas, by H.M.S. Psyche	800	-	-				
Ditto - - ditto - - - - Hebe of the Exe, by H.M.S. Curlew	750	-	-				
To Amount of Bills issued last year, on account of Salvage Service rendered to the Agnes by Her Majesty's ship Trident, cancelled during the year, payment not having been demanded	4	2	11				
				6,132	6	6	
Carried forward	-	-	£.	48,606	9	7	

SALVAGE, and other MONEYS, between the 1st April 1865 and the 31st March 1866.

5th December 1865, under Act 27 & 28 Victoria, c. 24.)

UNCLAIMED SHARE ACCOUNT PRIOR TO 1ST APRIL 1865:		£.	s.	d.	£.	s.	d.
By Amount of Unclaimed Shares of Prize, Bounty, Salvage, and other Moneys paid during the year out of the Balance, &c., per contra - - - -		713	4	5			
By Amount paid to Captain R. B. Oldfield, refunded by the Treasury, as per contra - - - - -		452	19	-			
					1,166	3	5
GOVERNMENT PER-CENTAGE ACCOUNT:							
By Amount of Allowance to 30th November 1865, paid to the late Sir R. M. Bromley, as Auditor - - - - -		200	-	-			
By Amount of Allowance between 1st October 1865 and 31st March 1866, paid to the Accountant General, and to the Clerk for preparing the Annual Account - - - - -		75	-	-			
By Amount of Shares allowed to be paid, under the authority of the Lords Commissioners of the Admiralty, after distribution had taken place - -		102	7	4			
					377	7	4
PRIZE FORFEITURES BY DESERTION, &c.:							
By Shares paid under the authority of the Lords Commissioners of the Admiralty, the forfeiture being removed - - - - -		-	-	-			
					6	4	8
SLAVE AND TONNAGE BOUNTY:							
By Amount paid during the year out of the Balance and Receipts, per contra, as detailed in Paper (A.) annexed - - - - -		26,353	12	2			
By Amount refunded by the Treasury and paid to Captain R. B. Oldfield, of Her Majesty's ship Lyra, as per contra - - - - -		111	17	1			
					26,465	9	3
SALVAGE SERVICES RENDERED BY HER MAJESTY'S SHIPS:							
By Amount distributed and paid out of the Balance and Receipts for Salvage Service, per contra, viz. :—							
Salvage Service rendered to the Agnes, by H.M.S. Trident - - -		19	8	5			
Ditto - - ditto - - - - Alma, by H.M.S. Furious and Cyclops -		5	1	6			
Ditto - - ditto - - - - Ava, by H.M.S. Retribution - -		1	11	2			
Ditto - - ditto - - - - Rajpoot, by H.M.S. Medusa - -		1,932	15	10			
Ditto - - ditto - - - - Statelie, by H.M.S. Hornet - -		1,146	2	7			
Ditto - - ditto - - - - Atlas, by H.M.S. Psyche - -		707	4	8			
Ditto - - ditto - - - - Hebe of the Exe, by H.M.S. Curlew -		481	8	10			
By transfer of deposit on account of the Iowa, by Her Majesty's ship Medusa to the Naval Votes, to be paid as extra pay - - - - -		350	-	-			
					4,643	13	-
Carried forward - - -		-	-	-	£.	32,658	17 8

	£. s. d.	£. s. d.
Brought forward - - - -	- - -	48,606 9 7
BOUNTY FOR DESTRUCTION OF PIRATES:		
To Balance of Amount of Bounty Money awarded to the Officers and Crews of Her Majesty's ships, under Votes of Parliament, for the destruction of Pirates, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1865 - - - -	1,462 - 3	
To Amount of Bounty Money awarded for destruction of Pirates in the China Seas, to the Officers and Crews of the undermentioned ships, and voted by Parliament in conformity with Acts 13 & 14 Vict., c. 26, paid to the Naval Prize Account of Her Majesty's Paymaster General at the Bank of England, by order of the Lords of the Treasury, viz.:—		
H.M. Ships Encounter, Hardy, and Flamer, 19th and 20th October 1862 -	1,500 - -	
H.M. Ship Snake, 9th, 10th and 11th August 1862 - - - -	154 16 8	
Including 24 l. 16 s. 8 d., Proctor's Expenses, paid out of Naval Votes.		
H.M. Ship Haughty, December 1863 and January 1864 - - - -	622 14 -	
Including 22 l. 14 s., Proctor's Expenses, paid out of Naval Votes.		
H.M. Ship Bustard, November 1863 - - - -	425 1 -	
Including 25 l. 1 s., Proctor's Expenses, paid out of Naval Votes.		
To Amount of Share of a Seaman in the Pirate Bounty to H.M. Ship Sampson, returned by the agent to whom it had been paid on a Prize Order, before it was known that the party had deserted - - - -	7 19 3	
To Amount of Bills issued in former years, cancelled during the year, payment not having been demanded, viz.:—		
On Account of Pirate Bounty to H.M.S. Hesper, &c., 20 April 1858 -	- 9 6	
Ditto - - - ditto - - - Kestrel, 23rd and 25th July 1860	29 10 3	
		4,202 10 11
BOOTY CAPTURED IN CHINA:		
To Balance of portion of Booty captured at Canton by the Naval and Military Forces, on the 28th and 29th December 1857, awarded to the Naval Squadron, and remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1865 - - - -	1,317 19 5	
To Amount of Bills issued in former years, cancelled this year, payment not having been demanded - - - -	59 10 7	
To Amount of a Share on which the forfeiture by desertion has been removed -	2 14 1	
		1,380 4 1
GRANT FOR SPECIAL SERVICE ON THE CHINA STATION:		
To Balance of Amount voted by Parliament to the Naval Force employed on the China Station between the 1st October 1856 and 26th June 1858, of 30 days' additional pay, remaining in the hands of Her Majesty's Paymaster General, at the Bank of England, unclaimed on the 1st April 1865 - - - -	6,075 18 10	
To Amount of Bills issued in former years, cancelled during the year, payment not having been demanded - - - -	62 2 6	
		6,138 1 4
CAPTURES FOR BREACH OF BLOCKADE OF THE CANTON RIVER:		
To Balance of the Net Proceeds of Junks captured by Her Majesty's ships between the 29th August and 19th December 1857, remaining in the hands of Her Majesty's Paymaster General at the Bank of England, on the 1st April 1865 - - - -	1,894 - 3	
To Amount of Bills issued in former years, cancelled during the year, payment not having been demanded - - - -	44 14 1	
		1,938 14 4
Carried forward - - -	- - £.	62,266 - 3

SALVAGE, and other MONEYS, between the 1st April 1865 and the 31st March 1866—continued.

	£. s. d.	£. s. d.
Brought forward - - - -	- - -	32,658 17 8
BOUNTY FOR DESTRUCTION OF PIRATES:		
By Amount distributed and paid out of the Balance and Receipts, per contra, viz.:—		
Bounty for destruction of Pirates by H.M.S. Magicienne, &c., 17 to 19 September 1858 - - -	2 15 5	
Ditto - - - ditto - - - by H.M.S. Magicienne, &c., 26 August to 4 September 1858 - - -	1 17 11	
Ditto - - - ditto - - - by H.M.S. Hesper, &c., 20 April 1858	5 17 11	
Ditto - - - ditto - - - by H.M.S. Niger, &c., 12 to 15 March 1859 - - - - -	5 - 6	
Ditto - - - ditto - - - by H.M.S. Fury, &c., 7 and 8 Decem- ber 1858 - - - - -	1 16 11	
Ditto - - - ditto - - - by H.M.S. Surprise and boats of Cambrian	1 7 2	
Ditto - - - ditto - - - by H.M.S. Kestrel, 23 and 25 July 1860	119 9 5	
Ditto - - - ditto - - - by H.M.S. Kestrel, 18 November 1861	33 5 3	
Ditto - - - ditto - - - by H.M.S. Grasshopper, and boat of Esk	15 7 1	
Ditto - - - ditto - - - by H.M.S. Encounter, &c., October 1862	1,053 12 -	
Ditto - - - ditto - - - by H.M.S. Snake, August 1862 - -	94 - 6	
Ditto - - - ditto - - - by H.M.S. Haughty, December 1863, and January 1864 - - -	286 13 9	
Ditto - - - ditto - - - by H.M.S. Bustard, November 1863 -	192 16 6	
		1,813 19 4
BOOTY CAPTURED IN CHINA:		
By Amount distributed and paid out of the Balance, &c., per contra - -	- - -	50 8 3
GRANT FOR SPECIAL SERVICE ON THE CHINA STATION:		
By Amount distributed and paid out of the Balance of the Grant of Parliament, per contra - - - - -	- - -	58 8 1
CAPTURES FOR BREACH OF BLOCKADE OF THE CANTON RIVER:		
By Amount distributed and paid out of the balance of the Net Proceeds of the Junks awarded, per contra - - - - -	- - -	283 12 1
Carried forward - - -	- - -	34,865 5 5

AN ACCOUNT showing the RECEIPT and EXPENDITURE of NAVAL PRIZE, BOUNTY,

	£. s. d.	£. s. d.
Brought forward - - - -	- - -	62,266 - 3
INDIAN PRIZE MONEY:		
To Balance of shares allotted to the Naval Brigade of Her Majesty's ship Shannon, employed at Lucknow during the Indian Mutiny, remaining in the hands of Her Majesty's Paymaster General at the Bank of England, on the 1st April 1865 - - - - -	208 7 -	
To Amount allotted on account of the Second Distribution - - - -	969 - -	
To Amount of share of a seaman, returned by the agent to whom it had been paid on a prize order, before it was known that the party had deserted - -	1 14 -	
To Balance of shares of the Satassee Booty captured by the Sarun Field Force on the 11th January 1858, allotted to the Naval Brigade of Her Majesty's ship Pearl, employed on shore during the Indian Mutiny, remaining in the hands of Her Majesty's Paymaster General at the Bank of England, on the 1st April 1865 - - - - -	637 4 6	
To Amount of Bills issued in former years, cancelled during the year, payment not having been demanded - - - - -	1 12 9	
		1,817 18 3
BOOTY CAPTURED IN PEGU:		
To Balance of portion of Booty captured by the Naval and Military Forces in Pegu in 1852-53, allotted to the Officers and Crews of Her Majesty's ships, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1865 - - - - -	1,066 13 -	
To Amount of bills issued in former years, cancelled during the year, payment not having been demanded - - - - -	1 19 4	
		1,068 12 4
GRANT FOR STORES CAPTURED AT KERTCH AND YENIKALE IN 1855:		
To Balance of portion of the Grant of Parliament for stores captured at Kertch and Yenikale in 1855 by the Naval and Military Forces, allotted to Her Majesty's ships, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1865 - - - - -	8,397 13 11	
To Amount of Bills issued in former years, cancelled during the year, payment not having been demanded - - - - -	219 9 6	
To Amount of a share, on which the forfeiture by desertion has been removed -	3 10 7	
		8,620 14 -
ADVANCE ACCOUNT IN ANTICIPATION OF PROCEEDS:		
To Sums repaid by the Treasury during the year - - - - -	- - -	356 2 1
	£.	74,129 6 11

Admiralty, 6 November 1866.

We certify that the foregoing Account has been examined with the Books, Vouchers, and other Documents the Paymaster General in support of Payments by that officer, on account of Naval Prize, and that the Account is, to

Audit Office, 17 January 1867.

SALVAGE, and other MONEYS, between the 1st April 1865 and the 31st March 1866—*continued*.

	£.	s.	d.	£.	s.	d.
Brought forward - - - -	-	-	-	34,865	5	5
INDIAN PRIZE MONEY:						
By Amount distributed and paid out of the Balances and Receipt, per contra, viz:—						
To the Naval Brigade of Her Majesty's ship Shannon - - - -	763	5	-			
Ditto - - - ditto - - - - Pearl - - - -	92	-	5			
				855	5	5
BOOTY CAPTURED IN PEGU:						
By Amount distributed and paid out of the balance of the portion of Booty allotted to the officers and crews of Her Majesty's ships, per contra - -	-	-	-	77	3	11
GRANT FOR STORES CAPTURED AT KERTCH AND YENIKALE IN 1855:						
By Amount distributed and paid out of the balance of the Grant of Parliament, per contra - - - -	-	-	-	553	2	11
ADVANCE ACCOUNT IN ANTICIPATION OF PROCEEDS:						
By Balance of Amount on the 1st April 1865, advanced to meet Expenses of Captures, under the authority of the Registrar of the High Court of Admiralty, in anticipation of Proceeds - - - -	842	6	-			
By further Advances made during the Year - - - -	249	3	3			
				1,091	9	3
By Balance, viz.: -						
Unclaimed Share Account prior to 1st April 1865 - - - -	5,597	1	7			
Government per-centage Account - - - -	1,035	17	11			
Prize forfeitures by Desertion, &c. - - - -	222	13	11			
Slave and Tonnage Bounty - - - -	7,603	5	-			
Salvage services rendered by Her Majesty's ships - - - -	1,488	13	6			
Bounty for destruction of Pirates - - - -	2,388	11	7			
Booty captured in China - - - -	1,329	15	10			
Grant for special service on the China Station - - - -	6,079	13	3			
Captures for Breach of Blockade of the Canton River - - - -	1,655	2	3			
Indian Prize Money - - - -	962	12	10			
Booty captured in Pegu - - - -	991	8	5			
Grant for stores captured at Kertch and Yenikale in 1855 - - - -	8,067	11	1			
(Including 4,000 <i>l.</i> transferred during the Year to the Consolidated Fund £.	37,422	7	2			
Less Amount advanced in anticipation of Proceeds - - - -	735	7	2			
				36,687	-	-
	£.			74,129	6	11

J. Beechey,
Accountant General of the Navy.

kept in the Accountant General's Department at the Admiralty, and with the Vouchers furnished to the Audit Office by the best of our knowledge and belief, correct.

Wm. Dunbar, } Commissioners for Auditing the
C. Macaulay, } Public Accounts.

(A.)

STATEMENT of SLAVE and TONNAGE BOUNTY.

DESCRIPTION OF PRIZE.	BY WHAT SHIP CAPTURED.	Date of Capture.	Balance remaining for Distribution or Payment on 1 April 1865.	Proceeds, &c. paid into Naval Prize Account in the Year 1865-66.	Bills issued in former Years cancelled, and Shares refunded in 1865-66.	TOTAL.	Distributed, or Paid in the Year 1865-66.	Balance on 1 April 1866.	First Day of Distribution.
			£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	
Three feluccas (names unknown)	Vesuvius	12 July 1859	94 18 7	-	-	94 18 7	7 - 7	87 18 -	14 Mar. 1861.
Name unknown	Pluto	30 Nov. "	149 9 -	-	-	149 9 -	12 16 1	136 12 11	4 Feb. 1862.
Conchita	Firefly	27 August 1857	52 16 3	-	-	52 16 3	-	52 16 3	7 Nov. 1859.
Laura	Archer	9 August 1859	73 18 3	-	-	73 18 3	-	73 18 3	Aug. 1862.
Marianne	Styx and Jasper	22 March 1858	88 - 6	-	-	88 18 4	1 3 9	87 14 7	30 July 1860.
Name unknown	Suppho	12 Sept 1837	287 15 9	-	- 17 10	287 15 9	19 2 11	268 12 10	24 Oct. 1859.
Zeldina	Arab	12 April	57 9 4	-	-	57 9 4	6 8 3	51 1 1	17 Nov. "
Tavernier	Viper	4 Nov. 1859	55 15 9	-	-	55 15 9	13 9 3	42 0 6	19 June 1862.
Two dhows (names unknown)	Lyra	23 August 1858	68 16 7	-	-	73 14 9	4 18 2	68 16 7	27 May 1861.
Rosario	Arrogant	13 Dec. 1859	75 19 10	-	4 18 2	75 19 10	- 7 8	75 12 2	5 Dec. "
Jacinta	Prometheus	27 May 1861	50 3 6	-	-	50 3 6	7 1 3	43 2 3	6 Feb. 1863.
Clara Windsor	Espoir	14 Dec. 1860	137 14 -	-	-	137 14 -	-	137 14 -	20 Oct. 1862.
Flight	Fulcon	19 May 1861	75 12 9	-	9 11 3	85 4 -	16 18 11	68 5 1	21 Nov. "
Echo, Rubens Anvers, or Globo	Lyra	3 Dec. 1859	75 18 9	-	8 15 3	84 14 -	-	84 14 -	26 Aug. 1863.
Mannella	Brisk	10 August 1860	248 19 8	-	-	248 19 8	7 1 -	241 18 8	25 May "
Name unknown	Antelope	3 June 1862	1,047 14 1	-	15 9 8	1,063 3 9	-	56 15 6	11 Dec. "
Reani or Fasul Geur	Penguin, tender to Narcissus.	29 August 1861	115 8 6	-	-	115 8 6	44 12 7	70 15 11	5 Feb. 1864.
Famosa Estrella	Persian	1 January	90 18 1	-	32 6 6	123 4 7	57 17 2	65 7 5	2 Nov. 1863.
Two dhows (names unknown)	Lyra	17 April	69 17 9	-	4 8 2	74 5 11	17 12 6	56 13 5	8 Dec. "
Name unknown	Flying Fish	18 April 1862	92 1 8	-	-	92 1 8	57 11 1	34 10 7	23 Dec. "
Ditto	Dart and Fulcon	11 July	1,137 4 5	-	-	1,137 4 5	934 15 7	202 8 10	1 Sept. 1865.
Buswahi	Sidon	20 Feb. 1861	85 2 1	-	-	85 2 1	20 6 2	64 15 11	26 May 1864.
Name unknown	Zebra	3 October 1862	365 - 5	-	-	365 - 5	300 2 9	64 17 8	4 July "
Ditto	Antelope	4 August	413 8 8	-	-	413 8 8	396 19 7	16 9 1	6 June "
Ditto	Zebra	27 August	329 12 6	-	-	329 12 6	207 7 6	62 5 -	4 July "
Ditto	Antelope	25 Nov. "	516 2 4	-	-	516 2 4	498 4 10	17 17 6	6 June "
Ditto	Zebra	20, 21 Nov. "	447 17 10	-	-	447 17 10	383 16 8	64 1 2	9 Aug. "
Island Queen	Wrangler	28 December	122 11 2	-	14 8 11	137 - 1	33 1 3	103 18 10	22 Aug. "
Three dhows (names unknown)	Ariel	4 April	95 5 9	-	-	95 5 9	28 11 7	66 14 2	25 July "
Two ditto	ditto	14, 15 July	51 - -	-	-	51 - -	15 18 9	35 1 3	9 Aug. "
Name unknown	ditto	24 March	580 17 3	-	-	580 17 3	457 14 -	123 3 3	23 Jan. 1866.
Margareta	Zebra	17 March 1863	1,068 6 8	-	-	1,068 6 8	946 9 4	121 17 4	7 Nov. 1864.
Haydee	Espoir	12 August	244 14 10	-	38 - -	282 14 10	160 7 2	122 7 8	10 Oct. "
Laura	Zebra	13 February	531 14 5	-	-	531 14 5	570 - 5	61 14 -	26 May 1865.
Name unknown	Penguin, tender to Narcissus.	7 July 1862	276 - 3	-	- 4 7	276 4 10	240 14 4	35 10 6	10 April "

[illegible]

J. Beeby, Accountant General of the Navy.

NAVAL PRIZE MONEY, &c.

ACCOUNT showing the RECEIPT and EXPENDITURE of NAVAL PRIZE, BOUNTY, SALVAGE, and other MONIES, between the 1st April 1866 and the 31st March 1866.

(Presented pursuant to Act 27 & 28 Vict. c. 24.)

Ordered, by the House of Commons, to be Printed,
13 February 1867.

NAVAL PRIZE MONEY, &c.

AN ACCOUNT

SHOWING THE

RECEIPT AND EXPENDITURE

OF

NAVAL PRIZE, BOUNTY, SALVAGE, AND OTHER MONEYS,

BETWEEN THE

1st APRIL 1866 and the 31st MARCH 1867.

Admiralty, }
25 July 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

(Presented pursuant to Act 27 & 28 Vict. c. 24.)

Ordered, by The House of Commons, to be Printed,
26 July 1867.

AN ACCOUNT showing the RECEIPT and EXPENDITURE of NAVAL PRIZE, BOUNTY,

(Prepared pursuant to Her Majesty's Order in Council of the

UNCLAIMED SHARE ACCOUNT PRIOR TO 1 APRIL 1865:					
To Balance of Unclaimed Prize, Bounty, Salvage, and other Moneys remaining in the hands of Her Majesty's Paymaster General at the Bank of England, on the 1st April 1866	-	-	£.	s.	d.
	-	-	5,597	1	7
To Share of a Seaman refunded	-	-	1	18	-
To Amount of bills issued in former years, cancelled during the year, payment not having been demanded	-	-	-	18	5
					5,599 18 -
GOVERNMENT PER-CENTAGE ACCOUNT:					
To Balance of Amount of per-centage deductions, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on 1st April 1866	-	-	1,035	17	11
To Amount of per-centage deductions from the net sums distributable, brought to account in the year	-	-	307	2	7
					1,343 - 6
PRIZE FORFEITURES BY DESERTION, &c.:					
To Balance of Amount of shares forfeited by desertion, &c., remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1866	-	-	222	13	11
To Amount of shares forfeited by desertion, &c., brought to account during the year	-	-	304	19	6
					527 13 5
SLAVE AND TONNAGE BOUNTY:					
To Balance of the Proceeds of the Sale of certain Slave Vessels, including Slave and Tonnage Bounties awarded, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1866, and detailed in Paper (A.) annexed	-	-	7,603	5	-
To Proceeds of the Sale of certain Slave Vessels captured by Her Majesty's ships, including the amount of Slave and Tonnage Bounties awarded, as per Paper (A.) annexed, paid to the Naval Prize Account of Her Majesty's Paymaster General at the Bank of England under Her Majesty's Order in Council of the 5th December 1865 (pursuant to Act 27 & 28 Vict. c. 24)	-	-	4,383	10	10
To Repayments, and Shares on which the forfeiture by desertion has been removed	-	-	33	8	10
					12,020 4 8
SALVAGE SERVICES RENDERED BY HER MAJESTY'S SHIPS:					
To Balance of Amount recovered from the Owners of certain Vessels for Salvage Services rendered to them by Her Majesty's ships, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1866	-	-	1,488	13	6
To Amount received from the Owners of certain Merchant Vessels for Salvage Services rendered by Her Majesty's ships, and paid to the Account of Her Majesty's Paymaster General at the Bank of England, between 1st April 1866 and 31st March 1867, under Her Majesty's Order in Council of 5th December 1865 (pursuant to Act 27 & 28 Vict. c. 24), viz.:-					
For Salvage Service rendered to the "Latona," by H.M.S. "Argus"	-	-	960	7	11
Ditto - - ditto - - - "Energy," by H.M.S. "Surprise"	-	-	595	-	-
Ditto - - ditto - - - "Medea," by H.M. Gun-boat "Lark"	-	-	150	-	-
					3,194 1 5
Carried forward	-	-	-	-	£.
					22,684 18 -

SALVAGE, and other MONEYS, between the 1st April 1866 and the 31st March 1867.

(th December 1865, under Act 27 & 28 Vict. c. 24.)

UNCLAIMED SHARE ACCOUNT PRIOR TO 1ST APRIL 1865:		£.	s.	d.	£.	s.	d.
By Amount of Unclaimed Shares of Prize, Bounty, Salvage, and other Moneys paid during the year out of the Balance, &c., per contra - - - -		855	9	11			
By Shares (carried to this Account prior to 1st April 1865, which then included all sums forfeited by desertion) paid under the authority of the Lords Commissioners of the Admiralty, the forfeiture being removed - - - -		40	10	-			
<i>Note.</i> —The sum of 36,000 <i>l.</i> (in addition to the 173,000 <i>l.</i> referred to in the Annual Account for 1854–55, 233) has been transferred from this Account to the Consolidated Fund, between 1st April 1855 and 31st March 1865, and is available, under the 17th section of Act 27 & 28 Vict. c. 24, for the payment of any claim on account thereof, which the Naval Prize Cash Balance may not be sufficient to meet.						895	19 11
GOVERNMENT PER-CENTAGE ACCOUNT:							
By Amount of Allowance paid to the Accountant General, and to the Clerk for preparing the Annual Account - - - - -		150	-	-			
By Amount of Shares allowed to be paid, under the authority of the Lords Commissioners of the Admiralty, after distribution had taken place - -		42	11	3			
						192	11 3
PRIZE FORFEITURES BY DESERTION, &c.:							
By Shares paid under the authority of the Lords Commissioners of the Admiralty, the forfeiture being removed - - - - -		-	-	-			
						1	13 1
SLAVE AND TONNAGE BOUNTY:							
By Amount paid during the year out of the Balance and Receipts, per contra, as detailed in Paper (A.) annexed - - - - -		-	-	-			
						6,781	15 7
SALVAGE SERVICES RENDERED BY HER MAJESTY'S SHIPS:							
By Amount distributed and paid out of the Balance and Receipts for Salvage Service, per contra, viz. :—							
Salvage Services rendered to the "Agnes," by H.M.S. "Trident" - -		11	18	10			
Ditto - - ditto - - - - "Alma," by H.M.S. "Furious" and "Cyclops" - - - -		16	5	10			
Ditto - - ditto - - - - "Ava," by H.M.S. "Retribution" -		3	17	4			
Ditto - - ditto - - - - "Rajpoot," by H.M.S. "Medusa" -		67	4	2			
Ditto - - ditto - - - - "Statelie," by H.M.S. "Hornet" -		34	10	9			
Ditto - - ditto - - - - "Atlas," by H.M.S. "Psyche" - -		25	15	1			
Ditto - - ditto - - - - "Hebe of the Exe," by H.M.S. "Curlew" -		215	10	4			
Ditto - - ditto - - - - "Latona," by H.M.S. "Argus" - -		782	6	8			
Ditto - - ditto - - - - "Energy," by H.M.S. "Surprise" -		3	15	-			
Ditto - - ditto - - - - "Medea," by H.M. Gun-boat "Lark" -		1	15	-			
						1,162	19 -
Carried forward - - -		-	-	£.		9,034	18 10

AN ACCOUNT showing the RECEIPT and EXPENDITURE of NAVAL PRIZE, BOUNTY

	£. s. d.	£. s. d.
Brought forward - - - -	- - -	22,684 18 -
BOUNTY FOR DESTRUCTION OF PIRATES:		
To Balance of Amount of Bounty Money awarded to the Officers and Crews of Her Majesty's ships, under Votes of Parliament, for the destruction of Pirates, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1866 - - - - -	2,388 11 7	
To Amount of Bounty Money awarded for destruction of Pirates in the China Seas, to the Officers and Crew of the undermentioned ship, and voted by Parliament in conformity with Acts 13 & 14 Vict., c. 26, paid to the Naval Prize Account of Her Majesty's Paymaster General at the Bank of England, by order of the Lords of the Treasury, viz.:—		
H.M. Ship "Grasshopper," 5th and 7th August 1864 - - - -	1,200 - -	
Ditto - - - ditto - 5th October 1864 - - - - - (Including 22 l. 4 s. 3 d. Proctor's Expenses, paid out of Naval Votes.)	172 4 3	3,760 15 10
BOOTY CAPTURED IN CHINA:		
To Balance of portion of Booty captured at Canton by the Naval and Military Forces, on the 28th and 29th December 1857, awarded to the Naval Squadron, and remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1866 - - - - -	1,329 15 10	
To Amount refunded - - - - -	1 9 4	1,331 5 2
GRANT FOR SPECIAL SERVICE ON THE CHINA STATION:		
To Balance of Amount voted by Parliament to the Naval Force employed on the China Station between the 1st October 1856 and 26th June 1858, of 30 days' additional pay, remaining in the hands of Her Majesty's Paymaster General at the Bank of England, unclaimed on the 1st April 1866 - - - - -	6,079 13 3	
To Amount of a Share refunded - - - - -	1 10 -	
To Amount of a Share on which the forfeiture by desertion has been removed -	1 10 -	6,082 13 3
CAPTURES FOR BREACH OF BLOCKADE OF THE CANTON RIVER:		
To Balance of the Net Proceeds of Junks captured by Her Majesty's ships between the 29th August and 19th December 1857, remaining in the hands of Her Majesty's Paymaster General at the Bank of England, on the 1st April 1866 - - - - -	1,655 2 3	
To Amount of a Share on which the forfeiture by desertion has been removed -	6 14 5	1,661 16 8
Carried forward - - -	- - £.	35,521 8 11

SALVAGE, and other MONEYS, between the 1st April 1866 and the 31st March 1867—*continued*.

	£.	s.	d.	£.	s.	d.
Brought forward - - - -	-	-	-	9,034	18	10
BOUNTY FOR DESTRUCTION OF PIRATES:						
By Amount distributed and paid out of the Balance and Receipts, per contra, viz.:—						
Bounty for destruction of Pirates by H.M.S. "Magicienne," &c., 17 to 19 September 1858 - - -	5	18	7			
Ditto - - - ditto - - - by H.M.S. "Magicienne," &c., 26 August to 4 September 1858 - - -	-	6	5			
Ditto - - - ditto - - - by H.M.S. "Hesper," &c., 20 April 1858	1	8	6			
Ditto - - - ditto - - - by H.M.S. "Fury," &c., 7 and 8 De- cember 1858 - - -	2	14	-			
Ditto - - - ditto - - - by H.M.S. "Nimrod" - - -	13	15	-			
Ditto - - - ditto - - - by H.M.S. "Racehorse" - - -	3	8	5			
Ditto - - - ditto - - - by H.M.S. "Surprise" and boats of "Cambrian" - - -	11	1	1			
Ditto - - - ditto - - - by H.M.S. "Kestrel," 23 and 25 July 1860 - - -	44	5	5			
Ditto - - - ditto - - - by H.M.S. "Kestrel," 18 November 1861	25	17	4			
Ditto - - - ditto - - - by H.M.S. "Grasshopper," and boat of "Esk" - - -	6	7	11			
Ditto - - - ditto - - - by H.M.S. "Encounter," &c., October 1862 - - -	121	5	5			
Ditto - - - ditto - - - by H.M.S. "Snake," August 1862 -	25	12	3			
Ditto - - - ditto - - - by H.M.S. "Haughty," December 1863, and January 1864 - - -	102	3	6			
Ditto - - - ditto - - - by H.M.S. "Bustard," November 1863	165	3	4			
Ditto - - - ditto - - - by H.M.S. "Grasshopper," 5 and 7 August 1864 - - -	703	-	2			
Ditto - - - ditto - - - by H.M.S. "Grasshopper," 5 October 1864 - - -	109	7	4			
				1,341	14	8
BOOTY CAPTURED IN CHINA:						
By Amount distributed and paid out of the Balance, &c., per contra - -	-	-	-	76	8	5
GRANT FOR SPECIAL SERVICE ON THE CHINA STATION:						
By Amount distributed and paid out of the Balance of the Grant of Parliament, per contra - - -	-	-	-	92	7	6
CAPTURES FOR BREACH OF BLOCKADE OF THE CANTON RIVER:						
By Amount distributed and paid out of the balance of the Net Proceeds of the Junks, awarded as per contra - - -	-	-	-	80	14	9
Carried forward - - -	-	-	£.	10,626	4	2

AN ACCOUNT showing the RECEIPT and EXPENDITURE of NAVAL PRIZE, BOUNTY,

	£.	s.	d.	£.	s.	d.
Brought forward - - - -	-	-	-	35,521	8	11
INDIAN PRIZE MONEY:						
To Balance of shares allotted to the Naval Brigade of Her Majesty's ship "Shannon," employed at Lucknow during the Indian Mutiny, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1866 - - - - -	415	16	-			
To Amount of shares on which the forfeiture by desertion has been removed -	2	18	-			
To Balance of shares of the Satassee Booty captured by the Sarun Field Force on the 11th January 1858, allotted to the Naval Brigade of Her Majesty's ship "Pearl," employed on shore during the Indian Mutiny, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1866 - - - - -	546	16	10			
To Amount of a Share refunded - - - - -	7	12	-			
				973	2	10
BOOTY CAPTURED IN PEGU:						
To Balance of portion of Booty captured by the Naval and Military Forces in Pegu in 1852-53, allotted to the Officers and Crews of Her Majesty's ships, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1866 - - - - -	991	8	5			
To Amount of bills issued in former years, cancelled during the year, payment not having been demanded - - - - -	11	6	10			
				1,002	15	3
GRANT FOR STORES CAPTURED AT KERTCH AND YENIKALE IN 1855:						
To Balance of portion of the Grant of Parliament for stores captured at Kertch and Yenikale in 1855 by the Naval and Military Forces, allotted to Her Majesty's ships, remaining in the hands of Her Majesty's Paymaster General at the Bank of England on the 1st April 1866 - - - - -	8,067	11	1			
To Amount of a Share on which the forfeiture by desertion has been removed -	3	10	7			
				8,071	1	8
ADVANCE ACCOUNT IN ANTICIPATION OF PROCEEDS:						
To Sums repaid by the Treasury, &c. during the year - - - - -				235	7	2
				£.	45,803	15 10

Admiralty, 7 June 1867.

The foregoing Account has been examined with the Books, Vouchers, and other Documents kept in the Accountant the Paymaster General in support of Payments by that officer on account of Naval Prize, and the Account is found

Examined, *F. A. Hauker*, Inspector.

SALVAGE, and other MONEYS, between the 1st April 1866 and the 31st March 1867—continued.

	£.	s.	d.	£.	s.	d.
Brought forward - - - -	-	-	-	18,626	4	2
INDIAN PRIZE MONEY:						
By Amount distributed and paid out of the Balances, per contra, viz:—						
To the Naval Brigade of Her Majesty's ship "Shannon" - - -	60	-	-			
Ditto - - - ditto - - - - - "Pearl" - - - - -	36	1	6	96	1	6
BOOTY CAPTURED IN PEGU:						
By Amount distributed and paid out of the balance of the portion of Booty allotted to the officers and crews of Her Majesty's ships, per contra - -	-	-	-	55	13	4
GRANT FOR STORES CAPTURED AT KERTCH AND YENIKALE IN 1855:						
By Amount distributed and paid out of the balance of the Grant of Parliament, per contra - - - - -	-	-	-	504	11	5
ADVANCE ACCOUNT IN ANTICIPATION OF PROCEEDS:						
By Balance of Amount on the 1st April 1866, advanced to meet Expenses of Captures, under the authority of the Registrar of the High Court of Admiralty, in anticipation of Proceeds - - - - -	735	7	2			
By further Advances made during the Year - - - - -	43	11	6	778	18	8
By Balance, viz.:—						
Unclaimed Share Account prior to 1st April 1865 - - - - -	4,703	18	1			
Government per-centage Account - - - - -	1,150	9	3			
Prize Forfeitures by Desertion, &c. - - - - -	526	-	4			
Slave and Tonnage Bounty - - - - -	5,238	9	1			
Salvage services rendered by Her Majesty's ships - - - - -	2,031	2	5			
Bounty for Destruction of Pirates - - - - -	2,419	1	2			
Booty captured in China - - - - -	1,254	16	9			
Grant for special service on the China Station - - - - -	5,990	5	9			
Captures for Breach of Blockade of the Canton River - - - - -	1,581	1	11			
Indian Prize Money - - - - -	877	1	4			
Booty captured in Pegu - - - - -	947	1	11			
Grant for Stores captured at Kertch and Yenikale in 1855 - - - - -	7,566	10	3			
Including 4,000 £. transferred since 1st April 1865 to the Consolidated Fund £.	34,285	18	3			
Less Amount advanced in anticipation of Proceeds - - - - -	543	11	6			
				33,742	6	9
				£.	45,803	15 10

J. Beeby,
Accountant General of the Navy.

General's Department at the Admiralty, and with the Vouchers furnished to the Exchequer and Audit Department by to be correct.

Certified by Wm. Dunbar,
Comptroller General of the Exchequer,
and Auditor General of Public Accounts.

Three dhows (names unknown)	Ariel -	-	-	4 April	66	14	2	-	-	-	-	-	-	-	-	-	-	28	11	7	38	2	7	25 July "
Two ditto - ditto	ditto -	-	-	14, 15 July	35	1	3	-	-	-	-	-	-	-	-	-	-	12	15	-	22	6	3	9 Aug. "
Name unknown	ditto -	-	-	24 March	123	3	3	-	-	-	-	-	-	-	-	-	-	75	5	7	47	17	8	23 Jan. 1866.
Margareta -	Zebra -	-	-	17 March 1863	121	17	4	-	-	-	-	-	-	-	-	-	-	99	10	7	22	6	9	7 Nov. 1864.
Haydee -	Espoir -	-	-	12 August "	122	7	8	-	-	-	-	-	-	-	-	-	-	45	15	2	76	12	6	10 Oct. "
Laura -	Zebra -	-	-	13 February "	61	14	-	-	-	-	-	-	-	-	-	-	-	28	1	5	33	12	7	26 May 1865.
Name unknown	Penguin, tender to Narcissus.	-	-	7 July 1862	35	10	6	-	-	-	-	-	-	-	-	-	-	10	2	1	25	8	5	10 April "
Ditto	ditto -	-	-	6 October "	55	9	4	-	-	-	-	-	-	-	-	-	-	15	3	1	40	6	3	10 April 1865.
Ditto	ditto -	-	-	16 July "	73	4	11	-	-	-	-	-	-	-	-	-	-	20	9	1	52	15	10	10 April "
Ditto	Rapid -	-	-	9 April 1863	18	10	9	-	-	-	-	-	-	-	-	-	-	3	17	7	14	13	2	21 Feb. "
Ditto	ditto -	-	-	25 April "	16	1	1	-	-	-	-	-	-	-	-	-	-	3	4	2	12	16	11	21 Feb. "
Ditto	ditto -	-	-	2 December "	38	2	8	-	-	-	-	-	-	-	-	-	-	18	18	7	19	4	1	16 May "
Ditto	Griffon -	-	-	8 Feb. 1864	17	15	-	-	-	-	-	-	-	-	-	-	-	17	15	-	-	-	-	23 Jan. "
Salamathi -	Persian -	-	-	14 Feb. 1860	59	17	10	-	-	-	-	-	-	-	-	-	-	8	9	4	51	8	6	10 March "
Mumbo Zaza -	ditto -	-	-	18 March "	62	4	9	-	-	-	-	-	-	-	-	-	-	8	12	2	53	12	7	10 March "
Name unknown	Ariel -	-	-	8 Dec. 1862	9	6	3	-	-	-	-	-	-	-	-	-	-	2	8	7	6	17	8	21 March "
Ditto	ditto -	-	-	11 Dec. "	15	12	1	-	-	-	-	-	-	-	-	-	-	4	1	5	11	10	8	21 March "
Ditto	ditto -	-	-	21 Dec. "	45	14	9	-	-	-	-	-	-	-	-	-	-	11	18	7	33	16	2	21 March "
Ditto	ditto -	-	-	26 Feb. 1863	44	11	2	-	-	-	-	-	-	-	-	-	-	14	4	6	30	6	8	21 March "
Ditto	ditto -	-	-	6 March "	19	6	5	-	-	-	-	-	-	-	-	-	-	6	3	2	13	3	2	21 March "
Ditto	ditto -	-	-	8 March "	63	17	3	-	-	-	-	-	-	-	-	-	-	19	11	-	44	6	3	21 March "
Two dhows (names unknown)	ditto -	-	-	31 March "	158	16	6	-	-	-	-	-	-	-	-	-	-	41	18	11	116	17	7	21 March "
Name unknown	ditto -	-	-	23 April "	38	16	1	-	-	-	-	-	-	-	-	-	-	10	2	5	28	13	8	15 June "
Ditto	ditto -	-	-	22 Sept. "	22	8	5	-	-	-	-	-	-	-	-	-	-	5	19	7	16	8	10	21 March "
Two dhows (names unknown)	ditto -	-	-	26 Sept. "	66	11	4	-	-	-	-	-	-	-	-	-	-	17	15	-	48	16	4	21 March "
Name unknown	ditto -	-	-	5 April 1862	22	15	1	-	-	-	-	-	-	-	-	-	-	8	-	9	14	14	4	17 Feb. "
Ditto	ditto -	-	-	9 April 1863	16	3	2	-	-	-	-	-	-	-	-	-	-	4	-	9	12	2	5	21 March "
Ditto	Dart -	-	-	7 July 1864	32	7	2	-	-	-	-	-	-	-	-	-	-	29	19	10	2	7	4	1 May "
America -	Ariel -	-	-	5 April "	209	4	4	-	-	-	-	-	-	-	-	-	-	100	14	-	113	9	1	22 May "
Name unknown	Lee, tender to Rattlesnake.	-	-	10 July "	459	14	6	-	-	-	-	-	-	-	-	-	-	313	9	-	146	5	6	26 June "
Melvira or Charles -	Dart -	-	-	22 July "	127	5	1	-	-	-	-	-	-	-	-	-	-	107	9	2	19	15	11	1 May "
Name unknown	Ariel -	-	-	14 March 1863	68	11	10	-	-	-	-	-	-	-	-	-	-	20	6	1	48	5	9	15 June "
Ditto	Gorgon -	-	-	27 Feb. "	60	2	11	-	-	-	-	-	-	-	-	-	-	14	7	-	45	15	11	1 June "
Ditto	Penguin, tender to Narcissus.	-	-	15 April 1864	61	3	2	-	-	-	-	-	-	-	-	-	-	14	7	7	47	4	8	15 Aug. "
Ditto	Griffon -	-	-	3 June "	12	16	3	-	-	-	-	-	-	-	-	-	-	8	4	9	4	11	6	24 June "
Carried forward - - - £.														32	8	10	1,749	-	3	3,148	6	10		

NAVAL PRIZE MONEY, &c.

ACCOUNT showing the Receipt and EXPENDITURE of NAVAL PRIZE, BOUNTY, SALVAGE, and other MONIES, between the 1st April 1866 and the 31st March 1867.

(Presented pursuant to Act 27 & 28 Vict. c. 24.)

*Ordered, by The House of Commons, to be Printed,
26 July 1867.*

525

NAVAL RESERVE.

RETURN to an Order of the Honourable The House of Commons,
dated 1 March 1867;—*for*,

RETURN “of the whole Number of MEN now Enrolled in the ROYAL
NAVAL RESERVE; distinguishing the Ports, &c. at which they are
Enrolled, and of the whole Number Drilled during the Year 1866.”

(*Admiral Erskine.*)

Ordered, by The House of Commons, to be Printed,
21 June 1867.

RETURN of the whole Number of MEN now Enrolled in the ROYAL NAVAL RESERVE; distinguishing the Ports, &c. at which they are Enrolled, and of the whole Number Drilled during the Year 1866.

(A.)—NUMBER ENROLLED to 31st December 1866.

NAME OF PORT.	Number Enrolled.	NAME OF PORT.	Number Enrolled.
Aberdeen - - - - -	626	Liverpool - - - - -	1,328
Aberystwith - - - - -	8	Llanelly - - - - -	34
Alloa - - - - -	27	London - - - - -	3,294
Arbroath - - - - -	53	Londonderry - - - - -	—
Ardrossan - - - - -	71	Lowestoft - - - - -	24
Arundel - - - - -	—	Lyme - - - - -	18
Ayr - - - - -	6	Lynn - - - - -	98
Banff - - - - -	27	Maldon - - - - -	8
Barnstaple - - - - -	23	Maryport - - - - -	120
Beaumaris - - - - -	42	Middlesborough - - - - -	9
Belfast - - - - -	66	Milford - - - - -	28
Berwick - - - - -	44	Montrose - - - - -	67
Bideford - - - - -	33	Newcastle - - - - -	206
Blyth - - - - -	61	Newhaven - - - - -	43
Borrowstoness - - - - -	16	Newport - - - - -	4
Boston - - - - -	3	Newry - - - - -	4
Bridgewater - - - - -	188	Padstow - - - - -	14
Bridport - - - - -	32	Penzance - - - - -	89
Bristol - - - - -	808	Perth - - - - -	11
Caernarvon - - - - -	140	Peterhead - - - - -	234
Cardiff - - - - -	130	Plymouth - - - - -	344
Cardigan - - - - -	42	Poole - - - - -	186
Carlisle - - - - -	4	Portsmouth - - - - -	95
Chepstow - - - - -	1	Preston - - - - -	2
Colchester - - - - -	8	Ramsay - - - - -	4
Cork - - - - -	156	Ramsgate - - - - -	17
Cowes - - - - -	4	Rochester - - - - -	16
Dartmouth - - - - -	241	Runcorn - - - - -	9
Deal - - - - -	3	Rye - - - - -	19
Douglas - - - - -	56	Scarborough - - - - -	37
Dublin - - - - -	118	Seaham - - - - -	374
Dumfries - - - - -	6	Shields, North - - - - -	1,070
Dundalk - - - - -	2	Shields, South - - - - -	369
Dundee - - - - -	867	Shoreham - - - - -	13
Exeter - - - - -	163	Sligo - - - - -	2
Falmouth - - - - -	90	Southampton - - - - -	337
Faversham - - - - -	21	Stornoway - - - - -	1
Powey - - - - -	170	Strangford - - - - -	2
Folkestone - - - - -	1	Stranraer - - - - -	4
Fleetwood - - - - -	30	Sunderland - - - - -	1,089
Galway - - - - -	21	Swansea - - - - -	171
Glasgow - - - - -	350	Teignmouth - - - - -	24
Gloucester - - - - -	1	Tralee - - - - -	1
Grangemouth - - - - -	5	Troon - - - - -	3
Greenock - - - - -	152	Waterford - - - - -	36
Grimsby - - - - -	18	Wells - - - - -	6
Guernsey - - - - -	3	Wexford - - - - -	65
Hartlepool - - - - -	505	Weymouth - - - - -	36
Harwich - - - - -	17	Whitby - - - - -	23
Hull - - - - -	158	Whitehaven - - - - -	155
Inverness - - - - -	61	Wick - - - - -	1
Ipswich - - - - -	11	Wigtown - - - - -	1
Jersey - - - - -	4	Wisbeach - - - - -	4
Kirkwall - - - - -	—	Woodbridge - - - - -	5
Leith - - - - -	82	Workington - - - - -	18
Lerwick - - - - -	231	Yarmouth - - - - -	110
Limerick - - - - -	20	Youghal - - - - -	16

Actual Strength on 31st December 1866, corrected by returns received to this date 16,286

Particulars received since 31st December 1866 :

Men who have died, been discharged, or joined Royal Navy - - - - - 60

STRENGTH of the RESERVE on 31st December 1866, }
as per returns to that date - - - - - 16,346

(B.)—NUMBER who presented themselves for DRILL during the Year 1866.

Drilled for 28 days - - - - -	7,293
Drilled for more than 28 days, being drill required for the current year, and arrears during the year 1865, when absent on a long voyage - - - - -	3,266
Drilled for less than 28 days in consequence of being discharged, dismissed, having died, or entered Royal Navy - - - - -	294
Absent on voyages - - - - -	651
Enrolled during the 2nd, 3rd or 4th quarters, and not required to perform 28 days' drill - - - - -	307
Unable to complete drill through sickness - - - - -	10
From unknown causes, have only performed 7, 14, or 21 days' drill - - - - -	1,418
Number who presented themselves for drill in the year - - - - -	13,239
Number who have taken no drill during the year in consequence of—	
1. Authorised absence - - - - -	836
2. Unknown causes - - - - -	1,197
3. Discharged abroad, deserted, &c. - - - - -	1,074
	3,107
TOTAL Strength of the RESERVE on 31st December 1866 -	16,346

General Register and Record Office of Seamen,
6, Adelaide-place, London Bridge,
8 June 1866. }

J. Mayo,
Registrar General.

NAVAL RESERVE.

RETURN of the whole Number of MEN now
Enrolled in the ROYAL NAVAL RESERVE; dis-
tinguishing the Ports, &c. at which they are
Enrolled, and of the whole Number Drilled
during the Year 1866.

(Admiral Erythine.)

Ordered, by The House of Commons, to be Printed,
21 June 1867.

549

NAVAL SAVINGS BANK ACT, 1866.

COPY of ORDER in COUNCIL, dated the 10th day of November 1866.

At the Court at Windsor, the 10th day of November 1866.

Present:—The QUEEN'S Most Excellent Majesty in Council.

WHEREAS by the Naval Savings Banks Act, 1866, it is enacted (among other things) that the said Act shall, with respect to the making of any Order in Council under it, take effect from its passing, and shall in all other respects take effect from the time appointed for its commencement by any such Order:

And whereas by the same Act it is also enacted that the Admiralty may establish Naval Savings Banks for the receipt of deposits of money from petty officers and seamen borne on the books of any vessel in Her Majesty's service, and from non-commissioned officers and privates of the Royal Marines:

And whereas by the same Act it is further enacted that it shall be lawful for Her Majesty in Council from time to time to make, by Order in Council, such regulations as to Her Majesty in Council seem meet for the management of Naval Savings Banks, and thereby to prescribe (among other things) the rate of interest to be allowed on deposits, not exceeding the rate of 3 *l.* 15 *s.* per centum per annum, and the terms and conditions on which deposits are to be received and interest is to be paid.

Now, therefore, Her Majesty, by virtue of the powers in this behalf by the said Act or otherwise in Her vested, is pleased, by and with the advice of Her Privy Council, to order, and it is hereby ordered, as follows:—

Preliminary.

1. The said Act and this Order shall commence from and immediately after the making of this Order.

2. In this Order—

The term Admiralty means the Lord High Admiral of the United Kingdom, or the Commissioners for executing the office of Lord High Admiral:

The term paymaster includes assistant paymaster or clerk, having the charge of the ship's books and accounts, or the paymaster of a division of Royal Marines.

How Savings Banks to be Established.

3. Upon directions being given by the Admiralty a Naval Savings Bank may be established on board any of Her Majesty's ships, or at the head-quarters of a division of Royal Marines (in this Order called quarters, or marine quarters).

Savings Bank Committee.

4. Where a Naval Savings Bank is established, the supervision of the accounts and the general management of the bank, subject and according to the provisions of this Order, shall be vested in a Committee consisting:

(1.) On board a ship: of the commanding officer, the second in command and the senior commissioned officer of marines;

(2.) At marine quarters: of the commanding officer, the second in command and the adjutant.

5. On board a ship where there is no commissioned officer of marines, the third member of the Committee shall be the chaplain or the senior medical officer.

When Bank to be open.

6. On board a ship in which a Naval Savings Bank is established the bank shall be open on the days (due notice being previously given) when monthly advances are paid, and in any month in which advances are not wanted the Committee shall appoint a day when the bank shall be open.

7. At marine quarters, where a Naval Savings Bank is established, the bank shall be open (due notice being previously given) upon such days as the Committee and the Accountant-General of the Navy appoint.

Deposits.

8. The Paymaster, under the direction of the Committee, shall receive into his chest, as public money, to be repaid out of public money, any sum presented for deposit by a person eligible to become a depositor, but no sum less than one shilling shall be received, nor any fractional part of a shilling.

Depositors to Invest their own Money only.

9. To prevent persons not specified in the Act as eligible to become depositors from availing themselves of the advantages afforded by the Naval Savings Banks, no seaman, marine, or other person so eligible shall on any pretence deposit in his own name the money of any other person, whether a seaman or marine or not; and in case any money is so deposited in contravention of this Order it shall be forfeited to the public, and one-half of the amount, or 5 *l.* where a moiety would exceed that sum, shall be allowed the informer, unless the whole amount shall, upon a special consideration of the circumstances of the case by the Admiralty, be restored to the owner of the money so deposited.

Minority of Depositors.

10. Where the depositor is an infant, the deposit with any interest thereon shall be repayable to himself only, and his receipt shall be a sufficient discharge for the same, notwithstanding his infancy; but in any case of fraud the Admiralty shall not be liable to pay the amount twice.

Depositors becoming of Unsound Mind.

11. Where it is made to appear to the satisfaction of the Admiralty that a depositor has become of unsound mind (though not found lunatic by inquisition), the whole or any parts of his deposits with interest thereon may be paid over, under the direction of the Admiralty, to the wife or relative or other person having the care and maintenance of such depositor, to be applied for his maintenance and benefit.

Depositors Deserting.

12. Deserters from a ship surrendering before the ship is put out of commission shall not forfeit their deposits or the interest thereon; and the Admiralty may in any case of desertion, if they think fit, remit the forfeiture of deposits and interest.

Payments Final.

13. Payment to a depositor in the presence of any member of the Committee, as such, shall be good and sufficient discharge for any principal or interest so paid to any depositor; and every payment made by the Admiralty under this Order shall be good and valid against all persons, and the Admiralty shall be absolutely discharged from all liability in respect of money so paid.

Withdrawals.

14. A depositor afloat wishing to withdraw the whole or any portion of his deposit, shall give to the paymaster seven days' notice prior to the next day of paying the monthly advances, in order that the necessary arrangements may be made on the same.

15. A depositor at marine quarters wishing to withdraw the whole or any portion of his deposit shall give to the captain of his company seven days' notice prior to a day on which the bank may be open, in order that the paymaster may be duly informed.

16. Payment may, however, be made forthwith, if the commanding officer is satisfied of the urgency of the case, and that the immediate withdrawal of the deposit would be for the advantage of the depositor.

17. No sum less than one shilling shall be withdrawn.

Lists of Deposits and Withdrawals.

18. At the time of receipt of the amounts deposited, the paymaster shall prepare a list of the same to be transmitted on the same day to the Accountant General of the Navy.

19. On the last day of each month a list of deposits withdrawn during the month shall be made by the paymaster, and transmitted to the Accountant-General of the Navy.

20. Before transmission, the correctness of both lists shall be certified by the Committee.

21. In case no deposits or no withdrawals are effected during the month, a nil return, signed by the Committee and the paymaster, shall, in either case, be transmitted to the Accountant General of the Navy.

Depositors transferred to other Ships, or Marine Quarters.

22. When a depositor is transferred from one ship to another, or, if a marine, from one division of quarters to another, or from quarters to a ship, or from a ship to quarters, his account shall be closed on board the ship or at the quarters he leaves; and, unless he requires to withdraw his deposits as provided by section 16 of this Order, it shall be reopened on board the ship, or at the quarters he joins, by a transfer list showing the balance and interest due to him.

23. The transfer list shall be made out by the paymaster, and certified by the Committee, in duplicate; one copy to be sent with the depositor to the ship or quarters to which he is transferred, and the other copy to the Accountant General of the Navy.

24. The paymaster of the ship or quarters to which the depositor is transferred, shall in like manner prepare in duplicate, to be certified by the Committee in the latter ship or quarters, an abstract of the number of depositors so transferred at one time; and of the amount of the balances and interest due to them: one copy to be sent to the commanding officer of the ship or at the quarters from which the depositors are received, and the other to the Accountant General of the Navy.

25. Should there not be a Naval Savings Bank in the ship or quarters to which a depositor is transferred, no further deposit shall be received from him while he remains there, but he may withdraw any portion of his deposits, or the whole, with the interest thereon, in cash, or on his discharge have the total principal and interest assigned for payment at the office of the Admiralty; and the commanding officer and the Paymaster of such ship or quarters shall, so far as relates to such withdrawals, govern themselves by this Order in the same manner as if a Naval Savings Bank were established therein.

26. On the further transfer of any such depositor from a ship or quarters in which there is not a Naval Savings Bank, or his return to his former ship or quarters,

quarters, unless he has withdrawn the whole amount to his credit, sections 22 to 24 of this Order shall apply, except that when all the depositors, whether one or more, included in the transfer list received with them are retransferred, such transfer list shall be the list required by section 23 to be sent to the commanding officer, and a copy of the same shall be sent to the Accountant General of the Navy.

27. Every payment made on a transfer list in a ship or quarters where a Naval Savings Bank is not established, and every retransfer therefrom, shall be noted on the transfer list, and when the whole of the credits thereon are severally paid, or retransferred, or merged in the effects of a depositor dying while in such ship or quarters, of which notation shall also be made thereon, the transfer list shall be sent to the Accountant General of the Navy.

Deposit or Pass Book.

28. Each depositor on making his first deposit shall be furnished by the paymaster for retention in his own custody, with a deposit or pass book, in which shall be entered at the time of receipt or payment the several sums deposited or withdrawn, and the paymaster and a member of the Committee shall acknowledge by their initials, therein the receipt of all deposits, and the payment of all sums withdrawn.

29. Each pass book on issue to a ship or quarters shall bear a distinguishing number, not necessarily as recording the consecutive order of deposit accounts, but for identification.

30. Should a depositor lose his pass book the Committee may direct that he be supplied with a duplicate book.

Savings Bank Ledger.

31. Under the inspection of the Committee, and secured by lock and key, the paymaster shall keep an account book or ledger, in which shall be entered, on the same day that the deposits, or withdrawals, or transfers are effected, the several sums to the debit or credit of each depositor.

Abstract Account.

32. Auxiliary to the savings bank ledger, the paymaster shall keep an abstract account of the deposits, withdrawals, and transfers, regularly posted, by inserting therein the totals of the respective lists in the order of the dates of the several aggregates of transactions occurring on the same days, and also on those dates the interest accrued on each aggregate balance left from the date of the previous aggregate of transactions, in order that this account may afford an efficient check on the correctness of the depositor's accounts.

33. From a ship in which a Naval Savings Bank is established the abstract account shall be rendered as provided by sections 47 and 49 of this Order.

34. From marine quarters where a Naval Savings Bank is established the paymaster shall transmit a duplicate of the abstract account to the Accountant General of the Navy annually.

Interest.

35. Interest on deposits shall be allowed for every completed day on every shilling deposited, at the full rate sanctioned by the Act, namely, 3 *l.* 15 *s.* - *d.* per cent. per annum, so far as the same can be conveniently computed, but no interest shall be allowed on interest accruing on deposits.

36. To insure accuracy in the computation of the interest, and to provide an efficient aggregate check thereon, it shall be calculated in decimals, and inserted in the depositors' accounts, as shown in the Appendix (A).

37. Interest on each deposit shall be computed and entered:

(1.) In the savings bank ledger to the depositor's credit whenever an amount is withdrawn, or a fresh deposit is made, or the depositor is transferred to another ship.

(2.) In

(2.) In the depositor's pass book (excluding fractions of a penny), either at the time of each transaction or subsequently, on the same day, when the depositor's account in the savings bank ledger is checked, as may be most convenient.

38. If the whole balance due to a depositor is withdrawn, the interest shall be paid with it, but not otherwise.

Depositors discharged or promoted.

39. On a depositor being discharged the service or ceasing, by promotion or otherwise, to be eligible to continue a depositor, his account shall be closed, and he may either receive his principal and interest in cash from the paymaster, or have the same remitted for investment in a Post Office Savings Bank, as hereinafter provided.

40. In the case of a depositor afloat discharged the service before the ship is put out of commission, the amount due may, in lieu of either of the above specified alternatives, be assigned on a savings bank transfer list for payment at the office of the Admiralty.

41. Where the amount due is remitted for investment in a Post Office Savings Bank, or assigned for payment at the office of the Admiralty, interest shall accrue to the day on which the bank is next opened, and the amount so withdrawn shall be shown separately on the withdrawal list for the month.

Depositors dying.

42. On the death of a depositor his account shall be closed, interest on his deposits to the day on which the bank is next to be opened shall be computed, and, with the principal, withdrawn, added to his other effects, and deemed money payable by the Admiralty, within the meaning of the Navy and Marines (Property of Deceased) Act, 1865.

43. In the case of his decease on a day when the bank is open, or in the case of the bank not being opened in the month ensuing his death, the interest shall be computed to the day of his death.

44. The amount withdrawn and the interest thereon shall be separately shown in the next monthly withdrawal list transmitted after the death.

Closing of Accounts on Ship's Paying Off.

45. As soon as it is officially ascertained on what day a ship on board which a Naval Savings Bank is established will be paid off, the paymaster shall close the depositor's accounts then open, and insert therein the interest due to the date of the pay off.

46. Marines having deposits, and desiring to transfer the same to the Naval Savings Banks of their respective divisions, shall be dealt with as depositors transferred from a ship to quarters; a transfer list shall be made out as provided by sections 22—25 of this Order, and the deposits so transferred shall not appear in the final withdrawal list.

For the purposes of a transfer by a marine under this section, if a Naval Savings Bank is not established at the quarters to which the marine belongs, a local savings bank, approved by the proper authority, shall be regarded as the Naval Savings Bank of the division.

47. The interest on the balances in the abstract account having been inserted from time to time as directed in section 32 of this Order, the paymaster shall next compute and insert therein interest on the last balance to the date of the paying off of the ship, and prepare the balance account and the final withdrawal list requisite to close each depositor's account.

48. In the final withdrawal list, except in the cases specified in section 46 of this Order, the Paymaster shall insert the name of each depositor whose account is then open, the balance amount of his deposits, and the interest due to him to the date of the paying off of the ship; and the amounts so inserted, except such portions as are remitted for investment in a Post Office Savings Bank, of

which notation shall be made on the list, shall be paid in the presence of the Committee at the time the ship's company are paid their wages.

49. The final withdrawal list, the abstract and balance account, with all other savings bank accounts on board, shall then be transmitted to the Accountant General of the Navy.

Transfer of Deposits to Post Office Savings Bank.

50. On a ship being put out of commission, as well as in the case specified in section 39 of this Order, depositors in a Naval Savings Bank established on board shall be furnished with facilities for investing in a Post Office Savings Bank the amounts or any parts thereof respectively due to them ; for which purpose the Accountant General of the Navy, or other officer appointed by the Admiralty for the purpose, shall be the general attorney for all such depositors.

51. As soon as it is officially ascertained on board when the ship will be put out of commission, a notice shall accordingly be posted in some conspicuous place on board, that depositors not wishing to draw their savings can have the same transferred to a Post Office Savings Bank by intimating such desire to the Paymaster.

52. The Paymaster, on receiving such intimation, shall send to the Accountant General of the Navy a remittance list of the amounts to be so invested, accompanied by a declaration from each depositor in the form prescribed by the Postmaster General.

53. The Accountant General of the Navy, on receipt of the remittance list and declarations, shall, in the names of the respective depositors, invest the amounts comprised therein ; by forwarding to the Postmaster General, with the declarations, a schedule containing the names and addresses of the several depositors and the amounts to be invested ; and, to Her Majesty's Paymaster General, a bill authorising the transfer of the sum total to the credit of the Postmaster General at the Bank of England.

54. The Postmaster General shall thereon cause to be sent to the several Postmasters of the towns in which the depositors respectively reside, pass-books, with the deposits entered therein, for delivery to the respective depositors on their personal application, and duly advise the Accountant General of the Navy of the same.

Withdrawal of Deposits from Post Office Savings Bank.

55. Should any such depositor, when subsequently serving afloat in any of Her Majesty's ships, or any person eligible to become a depositor in a Naval Savings Bank, desire to withdraw the whole or any part of the deposits he may have in a Post Office Savings Bank, the Postmaster General shall, on receipt of an order from the depositor in favour of the Accountant General of the Navy, or other officer appointed by the Admiralty for the purpose, accompanied by the pass-book, pay over to the Accountant General of the Navy or such officer, for remittance to the depositor, the amount, if due, specified in the order.

No Savings Bank Transactions to appear in Pay Documents or Ship's Books.

56. No transaction arising out of the business of Naval Savings Banks shall be shown in any way in the depositors' pay documents or the ship's books, or the books of the divisions of marine quarters, but, as provided by the foregoing regulations, the records of the same shall be kept perfectly distinct and disconnected from all other accounts, excepting only the paymaster's cash accounts, in which shall be debited and credited respectively the amounts deposited and withdrawn on board ship, or at quarters.

And the Lords Commissioners of Her Majesty's Treasury, and the Lords Commissioners of the Admiralty, are to give the necessary directions herein, as to them may respectively appertain.

Edmund Harrison.

APPENDIX (A.)

NAVAL SAVINGS BANKS.

Computation of Interest.

Interest at 3 *l.* 15 *s.* per cent. per annum is 9 *d.* per pound per annum, or 36 farthings for 365 days.

Cutting off the last figure from the number of days will therefore give the interest in farthings on each pound.

But in multiplying several pounds into a large number of days, it is obvious that the last figure being also multiplied would in some cases cause an excess in the results obtained.

To compensate for this, fractions of a penny must not be paid, and the fractions discarded will reduce the average interest within the prescribed limit.

To facilitate the accurate computation of interest a time table and interest paper are provided with the Naval Savings Banks forms.

By the former the number of days in any given period under twelve months may be mentally calculated, thus:

The table shows the number of complete days (from the 9th to the 10th is to be reckoned one day in computing interest, not two, as when computing wages), from any day in any month to the corresponding day in any subsequent month.

Examples:

1. Required the number of days from 24th May to 9th August. May to August in the table gives 92; but 15 days are wanted in August to carry the date to the corresponding day in May. Deduct that number from 92, and the result, 77, is the number of days between 24th May and 9th August.

Proof: $7 + 30 + 31 + 9 = 77$.

2. Required the number of days from 9th May to 24th August. Here there are 15 days in excess of the number obtained from the table (92) which gives 9th May to 9th August only; and the excess to the number obtained from the table, and the result, 107, is the number of days from 9th May to the 24th August.

Proof: $22 + 30 + 31 + 24 = 107$.

When the number of days is thus ascertained, it is to be inserted in the proper column in the depositor's account, and multiplied by the number of pounds in the deposit or balance due, with the last figure decimally pointed, thus: $107 \text{ days} \times \text{£}3 = 32\cdot1$; then by half the number of shillings with the two right hand figures, pointed (2 *s.* being $\frac{1}{16}$ of a pound) thus: $6 \text{ s.} \div 2 \times 107 = 3\cdot21$; and added together, thus:

$$\begin{array}{r} 32\cdot1 \\ 3\cdot21 \\ \hline \end{array} \quad \begin{array}{l} \text{farthings,} \\ 35\cdot31 = 8 \text{ d., } 3\cdot31 \text{ lost;} \end{array}$$

and the result shown in the adjoining columns of the depositor's account.

But observe, that should the number of days be odd, and the number of shillings to be multiplied thereby, be also odd, the three right hand figures of the product must be decimally pointed before being added to the product of the days multiplied into the pounds.

The interest paper will only be wanted when the calculation is intricate: it should then be used, and the calculations preserved amongst the vouchers.

Examples:

£ 2 16 *s.* 0 *d.* for 97 days.

$$\begin{array}{r} \text{Days} - - 97 \\ \times \\ \hline \text{Amount } \text{£} 2 16 \text{ s. } 0 \text{ d.} \end{array}$$

$$\begin{array}{r} 19\cdot4 \\ 7\cdot76 \\ \hline \end{array} \quad \begin{array}{l} \text{farthings,} \\ 27\cdot16 = 6 \text{ d., } 3\cdot16 \text{ lost.} \end{array}$$

£ 6 15 *s.* 0 *d.* for 39 days.

$$\begin{array}{r} \text{Days} - - 39 \\ \times \\ \hline \text{Amount} - \text{£} 6 15 \text{ s. } 0 \text{ d.} \end{array}$$

$$\begin{array}{r} 23\cdot4 \\ 2\cdot73 \\ \cdot195 \\ \hline \end{array} \quad \begin{array}{l} \text{farthings,} \\ 26\cdot325 = 6 \text{ d., } 2\cdot325 \text{ lost.} \end{array}$$

NAVAL SAVINGS BANK ACT, 1866.

COPY of ORDER in COUNCIL, dated 10th November 1866, relative to the NAVAL SAVINGS BANK ACT.

(Presented pursuant to Act 29 & 30 Vict. c. 43, s. 6.)

*Ordered, by The House of Commons, to be Printed,
13 February 1867.*

Under 1 oz.

557

NAVAL SAVINGS BANK (THE "VICTORIA").

RETURN to an Order of the Honourable The House of Commons,
dated 21 May 1867 :—for,

“RETURN of the SUMS invested Monthly in the NAVAL SAVINGS BANK by the
CREW of the ‘VICTORIA’ since it came into Operation.”

Admiralty, }
30 May 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

RETURN of the SUMS invested Monthly in the NAVAL SAVINGS BANK by the
CREW of the “VICTORIA” since it came into Operation.

DATES.							Sums.		
							£.	s.	d.
1 January	-	1867	-	-	-	-	131	17	-
4 February	-	„	-	-	-	-	2,852	14	-
1 March	-	„	-	-	-	-	297	4	-
1 April	-	„	-	-	-	-	305	12	-
1 May	-	„	-	-	-	-	141	7	-
							£.	3,728	14 -

Admiralty, Somerset House, }
27 May 1867. }

J. Beeby,
Accountant General of the Navy.

NAVAL SAVINGS BANK (THE "VICTORIA").

RETURN of the SUMS INVERTED Monthly in the
NAVAL SAVINGS BANK by the CREW of the
"VICTORIA" since it came into Operation.

(*Mr. Kinaird.*)

*Ordered, by The House of Commons, to be Printed,
4 June 1867.*

NAVY (PROMOTIONS).

RETURN to an Order of the Honourable The House of Commons,
dated 22 March 1867 ;—for,

RETURNS “ of the SERVICES and SEA TIME of Commanders *Wood, Graham, Fitzclarence,* and *Yorke,* at the time of their respective PROMOTIONS:”

“ Of the Seniority of each in the rank of Lieutenant:”

“ Of the Regulations under which they were Promoted ;”

“ And, of any Recommendations or of any special Circumstances in connection with those Promotions.”

Admiralty, }
29 March 1867.

JOHN HENRY BRIGGS,
Chief Clerk.

RETURN of the SERVICES and SEA TIME of Commanders *Wood, Graham, Fitzclarence,* and *Yorke,* at the Time of their respective PROMOTIONS ; of the Seniority of each in the rank of Lieutenant ; of the Regulations under which they were Promoted ; and, of any Recommendations or of any special Circumstances in connection with those Promotions.

COMMANDER THE HONOURABLE FRANCIS LINDLEY WOOD.

SHIPS.	Rank.	Period of Service		Time.	
		From	To	Years.	Days.
Hannibal - - - -	Naval Cadet -	11 May 1854	10 May 1856	2	1
Ditto - - - -	Midshipman -	11 May 1856	20 Nov. 1859	4	92
Iris - - - -	„ -	21 Nov. 1859	9 Aug. 1860		
				6	93
Narcissus - - - -	Lieutenant -	28 Jan. 1861	26 July 1864	3	181
Excellent, for study* - -	„ -	17 Oct. 1864	16 Feb. 1866	1	122
				4	303

* This Service counts as Harbour Service only.

	Years.	Days.
TOTAL Naval Cadet and Midshipman -	6	93
„ Lieutenant - - - -	4	303
TOTAL - - -	11	31

Seniority as Lieutenant - - - 20 December 1860.
Ditto - Commander - - - 6 February 1866.

COMMANDER JAMES STANLEY GRAHAM.

SHIPS.	Rank.	Period of Service		Time.	
		From	To	Years.	Days.
Fisgard - - - -	Naval Cadet -	5 June 1849	8 Aug. 1849	2	7
Queen - - - -	" - -	9 Aug. 1849	11 June 1851		
Ditto - - - -	Midshipman -	12 June 1851	15 Sept. 1851	4	10
Frolic - - - -	" - -	16 Sept. 1851	17 Oct. 1851		
Rodney - - - -	" - -	18 Oct. 1851	28 April 1852		
Winchester - - - -	" - -	29 April 1852	19 May 1852		
Virago - - - -	" - -	20 May 1852	30 Jan. 1854		
Portland - - - -	" - -	31 Jan. 1854	28 April 1854		
St. Jean d'Acre - - - -	" - -	29 April 1854	20 June 1855	6	17
Fury - - - -	Lieutenant -	21 June 1855	18 Oct. 1855	-	120
Colossus - - - -	" - -	15 Mar. 1856	9 Sept. 1856	1	248
Raleigh - - - -	" - -	10 Sept. 1856	17 Nov. 1857		
Euryalus - - - -	" - -	15 Feb. 1858	4 Oct. 1859	2	200
Marlborough, for Boxer -	" - -	5 Oct. 1859	1 Sept. 1860		
				4	203

	Years.	Days.
TOTAL Naval Cadet and Midshipman -	6	17
" Lieutenant - - - -	4	203
TOTAL - - -	10	220

Seniority as Lieutenant - - - - 21 June 1855.

Ditto - Commander - - - - 6 August 1860.

Mr. Graham served in the Trenches before Sebastopol in July 1855.

In August 1857, Lieutenant Graham was gazetted as having been engaged in the capture and destruction of Chinese War Junks on the 25th and 27th of May; and again, at the destruction, on the 1st of June 1857, of the Fatshan Flotilla of War Junks, on which latter occasion he was slightly wounded.

COMMANDER THE HONOURABLE GEORGE FITZCLARENCE.

S H I P S.	Rank.	Period of Service		Time.	
		From	To		
Fisgard - - - -	Naval Cadet -	22 Aug. 1849	7 Sept. 1849	2	-
Arrogant - - - -	" -	8 Sept. 1849	7 Feb. 1850		
Indefatigable - - - -	" -	8 Feb. 1850	21 Aug. 1851		
Ditto - - - -	Midshipman -	22 Aug. 1851	23 Nov. 1852	1	95
Britannia - - - -	" -	14 Dec. 1852	13 Mar. 1855	2	90
Tribune - - - -	" -	14 Mar. 1855	15 Oct. 1855	-	216
Ditto - - - -	Mate -	16 Oct. 1855	16 May 1856	-	214
Retribution - - - -	" -	18 Sept. 1856	10 Mar. 1857	-	249
Leopard - - - -	" -	11 Mar. 1857	24 May 1857		
				7	134
Cæsar - - - -	Lieutenant -	12 June 1858	2 Mar. 1861	4	21
Princess Royal - - - -	" -	3 Mar. 1861	30 April 1861		
Revenge - - - -	" -	1 May 1861	1 July 1862		

	Years.	Days.
TOTAL Naval Cadet and Midshipman -	6	36
" Mate - - - -	1	98
" Lieutenant - - - -	4	21
TOTAL - - -	11	155

Seniority as Lieutenant - - - 25 May 1857.

Ditto - Commander - - - 24 June 1862.

In May 1854, Mr. Fitzclarence was gazetted as having commanded a Rocket Boat at the attack on Odessa, 22nd April 1854.

COMMANDER THE HONOURABLE JOHN MANNERS YORKE.

SHIPS.	Rank.	Period of Service		Time.	
		From	To	Years.	Days.
Hannibal - - - -	Naval Cadet -	9 Mar. 1854	7 Mar. 1856	2	1
Ditto - - - -	Midshipman -	8 Mar. 1856	2 Nov. 1856	4	-
Brilliant - - - -	" -	3 Nov. 1856	21 Nov. 1857		
By Admiralty Order - -	" -	22 Nov. 1857	30 Dec. 1857		
Raccoon - - - -	" -	31 Dec. 1857	24 Feb. 1858		
Euryalus - - - -	" -	25 Feb. 1858	6 Mar. 1860	-	44
Ditto - - - -	Acting Mate -	7 Mar. 1860	19 April 1860		
Bacchante - - - -	" -	5 May 1860	6 June 1860		
Ditto - - - -	Mate -	7 June 1860	16 April 1861		
Ditto - - - -	Acting Lieutenant	17 April 1861	21 May 1861	-	35
				7	62
Ditto - - - -	Lieutenant -	22 May 1861	26 Feb. 1862	4	62
Revenge - - - -	" -	27 Feb. 1862	16 June 1862		
Black Prince - - - -	" -	17 June 1862	20 July 1865		
Asia * (Flag) - - - -	" -	21 July 1865	19 Jan. 1867	1	182
				5	244

* This Service counts as Harbour Service only.

	Years.	Days.
TOTAL Naval Cadet and Midshipman - -	6	1
" Mate and Acting Lieutenant - -	1	61
" Lieutenant - - - -	5	244
TOTAL - - -	12	306

Seniority as Lieutenant - - - - 22 May 1861.

Ditto - Commander - - - - 19 Jan. 1867.

All these Officers were promoted by the Admiralty in the usual way, under the regulations of having served the time required by the Queen's Regulations to render a Lieutenant eligible for a Commander's Commission, viz., "two complete years as Lieutenant in one or more of Her Majesty's Ships in Commission."

NAVY (PROMOTIONS).

RETURN of the SERVICES and SEA TIME of
Commanders *Wood, Graham, Fitzgerald,* and
York, at the Time of their respective Promo-
tions; of the Seniority of each in the Rank of
Lieutenant; of the Regulations under which they
were Promoted; and of any Recommendations or
special Circumstances in connection with those
Promotions.

(*Mr. Childers.*)

Ordered, by The House of Commons, to be Printed,
2 April 1867.

NAVY (SHIPS "FREDERICK WILLIAM," &c.)

RETURN to an Order of the Honourable The House of Commons,
dated 24 July 1867;--for,

COPY "of CORRESPONDENCE between the Admiralty and Mr. *Seely*
relating to the Cost of Building the 'FREDERICK WILLIAM,' and the Cost
of Repairing the 'BRISK' and the 'CADMUS.'"

Admiralty, }
12 August 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

(*Mr. Seely.*)

Ordered, by The House of Commons, to be Printed,
13 August 1867.

COPY of CORRESPONDENCE between the Admiralty and Mr. *Seely* relating to the Cost of Building the "FREDERICK WILLIAM," and the Cost of Repairing the "BRISK" and the "CADMUS."

— No. 1. —

COPY of CONTROLLER'S SUBMISSION of 8th August 1867.

Admiralty, S.W., 8 August 1867.

THE correspondence moved for by Mr. Seely cannot be understood without a short preliminary statement.

In the course of a debate in the House of Commons on the Navy Estimates, Sir John Pakington, then First Lord of the Admiralty, found it necessary to dispute the accuracy of the figures quoted by Mr. Seely. It was then agreed between Sir John Pakington and Mr. Seely that each would communicate to the other the data on which their respective assertions were founded.

Sir John Pakington desired me to undertake the task of verifying the figures he had quoted, and Mr. Seely requested me to see and arrange with his secretary how we should proceed to ascertain the accuracy of the respective statements.

After several conversations it was agreed between us that I should give Mr. Fellows the papers on which Sir John Pakington relied, and that he should give me those which Mr. Seely considered made out his case.

The papers marked A. B. and C. were sent to Mr. Fellows (*see* pages 1 to 7), who furnished me in return with the papers marked D. (*see* pages 8 to 30).

On the 9th May Mr. Fellows sent to the Controller paper E. (*see* page 30).

On the 16th May the Controller made a submission to the Board, F., on the whole subject, enclosing the papers, and requesting to be informed of their Lordships' directions (*see* page 33).

On the 28th June the submission was approved, and sent next day to Mr. Seely, with a letter, G. (*see* page 36).

Mr. Seely made a reply, H., dated 8th July (*see* page 36). This reply, together with the Controller's submission, I., upon it, was sent to the Board on the 10th (*see* page 39).

It is not known how this last submission was dealt with by the Board of Admiralty, but the Controller wrote a letter, K., to Mr. Seely on the 10th, declining any further controversy (*see* page 39).

Robert Spencer Robinson.

— No. 2. —

COPY of CONTROLLER of the NAVY'S SUBMISSION of 4 January 1867.

A.

(Handed to Mr. *Fellows* on 11 April 1867.)

IN Mr. Seely's speech I find it stated that the "Brisk" has cost 43,498 *l.* for repairs, and could be built for 49,321 *l.*

I do not know how these figures are arrived at, or what Mr. Seely includes in the two statements.

The facts are these,—The “Brisk” was paid off in August 1863, and commissioned again in August 1864.

The total net charge, shown by the Accountant General against the ship in the two financial years 1863–4 and 1864–5, amounted to 36,099 *l.*; it included repairs to the hull, masts, yards, rigging, stores, a charge for adapting, and fitting to her, engines taken from a ship broken up (the “Lapwing”), her own engines being of very faulty construction, and of the earliest type of screw engines; and included the value of the engines; also a thorough repair and retubing of the boilers, a small sum for machinery purchased, and some small amount spent, after she was in commission, for casualties and wear and tear.

I have moreover thought it right to add to the incidental expenses, included in the sum of 36,099 *l.*, a sum of 1,953 *l.* on account of establishment charges not included in the first year’s account, so that the charge against the “Brisk” for all these particulars, amounts to 38,052 *l.*

	£.
Of which the repairs to the hull cost - - - - -	14,203
Renewing masts and yards - - - - -	1,031
Rigging and stores, including engineer’s stores, after deducting the value of serviceable stores returned and re-issued	4,119
Engines, boilers, and spare gear, including value of “Lapwing’s” engines - - - - -	7,870
Incidental charges as given in Parliamentary Accounts -	8,876
Additions to the first year’s charge of establishment, and other charges - - - - -	1,953
TOTAL - - - £.	38,052

The first Cost of the “Brisk” built in 1850 and 1851, gives for Labour and Materials the following figures:

	£.
Hull - - - - -	27,446
Masts and yards - - - - -	883
Engines - - - - -	12,296
Rigging and stores, including engineer’s stores - - -	6,762
Establishment and incidental charges, at 35 per cent., exclusive of any charges on the amount paid to contractor for engines - - - - -	12,316
TOTAL - - - £.	59,703

As no portion of the establishment charges, which the Accountant General states have enhanced the charge against ships 35 per cent., was then added to the cost of ships, it becomes necessary to add 35 per cent. to these charges, to arrive at a just comparison of the cost of building and repairing the “Brisk.”

I have also to observe that it would be quite impossible to build a ship of the size of the “Brisk” at the present day, fitted and strengthened as ships now are, for 27,446 *l.* for labour and materials only.

She would now cost 33,000 *l.* at the very least, for labour and materials only. It is the fitting of ships according to our improved knowledge of sanitary arrangements, and with the enormously increased appliances for the accommodation of officers and men, that causes refits to be so costly.

The case of the “Cadmus,” when examined, is similar to that of the “Brisk.”

The “Cadmus” was paid off in May 1863, and re-commissioned in December 1864, after a thorough repair and refit.

The total charge against the ship, shown by the Accountant General during the financial years 1863–4, and 1864–5. amounts to 58,124 *l.* It includes repairs to the hull, building a forecastle, alteration for armament fittings, repairs of masts and yards, the charge for rigging and stores, a Griffith’s screw, repairs to engines and boilers, &c., and engineer’s stores, as well as some small sums for wear and tear, and casualties after the ship was in commission.

To this sum of 58,124 *l.* I have thought it right to add the difference between the

the rate of per centages charged in 1863-4, and 1864-5, amounting to 1,676 l., so that the total charge against the "Cadmus" amounts to 59,800 l.

		£.
Of which the repairs to the hull cost - - - - -		30,281
Masts and yards - - - - -		1,251
Rigging and stores, including engineer's stores - - - - -		6,119
Engines and boilers - - - - -		4,744
Establishment charges, and additional per-centage for 1863-64	{	15,729
		1,676
TOTAL - - - £.		59,800
The first cost of the hull of "Cadmus," for labour and materials only, was - - - - -		£.
Engines - - - - -		34,756
Masts and yards - - - - -		26,103
Rigging and stores, including engineer's stores - - - - -		1,220
Establishment charges, at 35 per cent., exclusive of any charges on the amount paid to contractor for engines -		8,089
		15,537
GRAND TOTAL - - - £.		85,705

This also is a very different case from that made out by Mr. Seely; how Mr. Seely arrives at his figures that the repairs of the "Cadmus" cost 65,800 l., and that the ship new would cost 68,278 l., I cannot say; and I must repeat, as I did about the "Brisk," that to build and fit the "Cadmus" now, as she was refitted in 1864-65, would cost for labour and materials on the hull alone 48,000 l., to which must be added the cost of—

		£.
Engines - - - - -		26,103
Masts and yards - - - - -		1,220
Rigging and stores - - - - -		8,089
Establishment charges at 35 per cent. - - - - -		20,172
GRAND TOTAL - - - £.		103,584

So that the lowest amount which a new "Cadmus" would have cost, amounts to 103,584 l.

(signed) Rob. Spencer Robinson.

— No. 3. —

B.

COPY of CONTROLLER'S SUBMISSION to the BOARD of ADMIRALTY, dated 29 January 1867.

(Handed to Mr. Fellows on 11 April 1867.)

MR. SEELY has again repeated an assertion he made last year, that the "Frederick William" had cost 281,691 l., and that a new ship might have been built for 134,453 l., but with this variation in his last version of the transaction, that the "Frederick William" cost for repairs 281,691 l., and that a new ship of her class might have been built for 134,453 l.

The "Frederick William" was begun as a sailing three-decker in 1841, converted into a screw ship between 1859 and 1862, maintained in the first division of the reserve between that date and 1864, and has been in commission since that time.

Maintaining a ship in the first division of reserve entails some expense. The guns, the shot, the cables, the boats are all on board. Guns must be moved, cables hauled up, cleaned, and surveyed, every six months; shot the same. The rigging has to be attended to, the masts and yards got up periodically, the ship has to be docked, caulked and painted each year, &c., and the machinery tried.

Adding therefore every charge of this nature, and all the expenses of maintaining in reserve and in commission to the original outlay upon the "Frederick William,"

William," we get a cost of 147,409 *l.* upon the hull. The Admiralty paid 29,875 *l.* for the engines, adding to which the cost of maintaining them, 169 *l.*, we have a total cost of hull and engines for the "Frederick William" of - - - - - £ 177,453

From this, if the cost of maintenance in reserve and in commission be deducted, viz. - - - - - 5,600

We get - - - - - £. 171,853

which is the actual cost in labour and materials for the hull and engines of the "Frederick William."

Now, a screw two-decked ship of the "Frederick William" class, 3,241 tons built at the present date in any of our dockyards and fitted as the "Frederick William" is, would, for labour and materials, cost us 35*l.* per ton. for the hull, or - - - - - £. 113,435

To which add the engines - - - - - 29,875

And we get - - - - - £. 143,310

for the hull and engines of such a ship built new, without any equipment whatever.

Had Mr. Seely compared these two sums together, that is 171,853 *l.* and 143,310 *l.*, and deduced from such a comparison, that to convert the "Frederick William" was a mistake, the question would have been fairly put, and could have been fairly answered; but to add, as he appears to have done, to the 171,853 *l.* the cost of masts and yards, rigging and stores, all maintenance charges, and an unknown per-centage, from which agglomeration of charges he swells the cost of the "Frederick William" to 281,691 *l.*, and compare this with a smaller sum than the hull of the ship and her engines alone would cost, as a proof of the advantage of building a ship new, is a strange proceeding.

I enclose an extract of the expense accounts of the "Frederick William" as given by the Accountant General, from 1841 to 1865, from which it will be seen that—

	£.
The charge for building, as a sailing ship, amounted to - -	84,948
The charge for conversion, labour, and materials amounted to -	43,402
Fitting for first division, including equipment of all kinds, stores, and including 3 per cent. charges - - - - -	35,101
Maintenance in commission, and in reserve, including sea stores and engineer's stores and wear and tear - - - - -	9,755
Engines - - - - -	29,875
	<u>203,081</u>
Deduct returns of materials, stores, &c. - - - - -	5,093
	<u>197,988</u>
Actual charge - - - - -	
Adding 35 per cent. to the charges when per-centages were not calculated, and the actual incidental and establishment charges since they have been so calculated, viz. - - - - -	60,613
	<u>258,601</u>
We get, as the expenses of the "Frederick William," for 24 years - - - - -	£. 258,601

Mr. Seely, perhaps, believes that a two-decked ship fitted like the "Frederick William" can be built, equipped for sea, stored and engined for 134,453 *l.*, but we know that this is utterly impossible in the Government dockyards, and that probably there are no private yards in the kingdom which have the materials or the appliances to build such a ship at all, for any price. All our experience, at any rate, points in that direction.

The question would be to produce a similar ship to the "Frederick William," not a slop ship, of 3,241 tons, for the money.

I am persuaded that the cost of the masts and yards, rigging and stores of such a ship is quite unknown to Mr. Seely or he would never have made such an assertion.

(signed) *Rob. Spencer Robinson.*

H. M. SHIP "FREDERICK WILLIAM."

EXPENDITURE incurred at the HOME DOCKYARDS during the Years 1841 to 1865.

Y E A R S.	H U L L.		Masts and Yards.	Rigging and Stores.	Engineer's Stores.	MACHINERY.		Charge.	(A) Incidental Charges.	(B) 35 per Cent. on Charge.	Difference between (A) and (B) to be added to TOTAL.
	Materials.	Labour.				Materials.	Labour.				
Expense building, as a sailing vessel, from July 1841 to May 1859	£. 61,695	£. 23,253	£. -	£. -	£. -	£. -	£. -	£. 84,948	£. -	£. 29,731	£. 29,731
Expense converting and building, as a screw, from May 1859 to 31 March 1862	26,454	16,818	-	-	-	-	-	43,402	2	15,190	15,188
Ditto, ditto, fitting	6,569	4,773	196	4,162	-	-	-	15,704	-	5,496	5,496
Expense of fitting, &c., 1861-2	1,658	883	54	2,906	46	-	-	5,697	1,204	2,009	705
Ditto - - ditto	23	4	-	5,932	13	-	4	44	10	4,779	2,221
Ditto - - ditto	1,570	2,601	84	5,992	328	-	7	13,580	2,539	913	393
Ditto - - ditto	9	17	6	22	22	-	-	76	19	-	-
Ditto - - ditto	1,079	1,190	48	68	-	43	46	2,526	506	-	-
Ditto - - ditto	10	32	4	1	97	-	-	85	14	-	-
Ditto - - ditto	631	1,334	14	2,881	133	-	-	4,993	1,821	-	-
Ditto - - ditto	95	91	2	453	-	6	28	633	-	-	-
Ditto - - ditto	74	104	-	342	84	-	-	426	-	-	-
Ditto - - ditto	-	-	-	77	10	-	6	32	674	-	-
Ditto - - ditto	347	392	8	-	-	26	-	834	-	-	-
Ditto - - ditto	-	-	-	-	-	-	4	6	-	-	-
TOTAL - - £.	100,214	51,492	3,235	16,903	673	77	96	173,206	6,879	58,118	-
RETURNS and CREDITS.											
Stores returned, while building and converting, as a screw, from May 1859 to 31st March 1862.	4,344	-	-	-	-	-	-	4,344	-	-	-
Ditto, ditto, fitting	285	-	-	28	-	-	-	313	-	-	-
Ditto, ditto, 1861-2	125	-	-	105	-	1	-	230	-	-	-
Ditto, ditto, 1864-5	19	-	-	3	-	2	-	11	-	-	-
Ditto, ditto, 1864-5	-	-	-	125	-	1	-	428	-	-	-
Ditto, ditto, 1864-5	-	-	-	12	-	-	-	4	-	-	-
Ditto, ditto, 1864-5	31	-	-	-	-	-	-	43	-	-	-
TOTAL Returns and Credits	4,813	-	-	273	3	4	-	5,093	-	-	-
Net Charge	95,401	51,492	516	16,630	670	73	96	168,113	6,879	58,118	-
TOTAL - - - £.	147,409	147,409	3,235	17,300	17,300	169	169	29,875	29,875	-	-
Difference between (A) and (B). Total Net Charge. Incidental Charges.											53,734
Paid contractors for machinery.											108,113
Grand Total											228,726
Grand Total											29,875
Grand Total											258,601

H. M. SHIP "BRISK."

EXPENDITURE incurred at the HOME DOCKYARDS during the Years 1863-4 and 1864-5.

YEARS.	HULL.			Masts and Yards.	Rigging and Stores.	Engineer's Stores.	MACHINERY.		Gross Charge.	(A) Incidental Charges.	(B) 35 per cent. on Gross Charge.	Difference between (A) and (B) to be added to Total.
	Materials.	Labour.	Per-centage.				Materials.	Labour.				
1863-4	£. 17 5,547 9	£. 20 4,584	£. 291	£. 409	£. 32	£. 2	£. 863	£. 1,216	£. 37 12,942 11	£. 9 2,581 8	£. 4,546	£. 1,953
1864-5	£. 36 2 1,334 444	£. 52 1 1,823 214	£. -	£. 822	£. 1,090 4,941	£. 139 740	£. 2 5,543	£. 8 756	£. 1,317 13 9,060 6,957	£. 6,283	£. 6,283	£. 1,953
TOTAL	7,389	6,694	291	1,231	6,063	881	6,408	1,980	30,937	8,876	10,829	1,953
RETURNS AND CREDITS.												
1863-4	-	-	-	488	2,492 5	155	-	-	2,835 5	-	-	-
1864-5	47	-	-	-	89	24	73	-	430 73 210 461	-	-	-
TOTAL Returns and Credits	471	-	-	200	2,639	186	578	-	3,714	-	-	-
Net Charge	7,218	6,694	291	-	3,424	695	5,890	1,980	-	8,876	10,829	-
TOTAL	-	14,203	-	1,081	4,119	-	7,870	-	27,223	-	-	-
GRAND TOTAL - - - £.											1,953	-
											27,223	-
											8,876	-
											38,052	-

Taken from Parli-
mentary Account.{ Difference between
(A) and (B)
Total Net Charge.
Incidental Charges.

EXPENDITURE incurred at the HOME DOCKYARDS during the Years 1863-4 and 1864-5.

YEARS.	H U L L.			Masts and Yards.	Rigging and Stores.	Engineer's Stores.	M A C H I N E R Y.		Gross Charge.	(A) Incidental Charges.	(B) 85 per cent. on Gross Charge.	Difference between (A) and (B) to be added to Total.
	Materials.	Labour.	Per-centage.				Materials.	Labour.				
1863-4	£. 4,087 1	£. 4,380	£. 286	£. 2	£. -	£. 8	£. 1,158	£. 1,096	£. 10,889 9	£. 2,134 1	£. 3,811 8	£. 1,676
1864-5	£. 239 74 11,766	£. 358 9 65 7 10,379 4	£. -	£. 1,288	£. 2,390 50 6,170	£. 137	£. 5 15 4,278 14	£. 16 - 793 69	£. 4,433 24 189 34,132 83	£. 13,591	£. 13,591	£. 1,676
TOTAL	£. 16,167	£. 15,152	£. 286	£. 1,460	£. 8,610	£. 721	£. 5,470	£. 1,904	£. 49,770	£. 15,729	£. 17,405	£. 1,676
RETURNS AND CREDITS.												
1863-4	-	-	-	208	2,740 110	458	-	-	3,406 410	-	-	-
1864-5	£. 420 8 928 273	-	-	1	£. 89 2 413	-	£. 666 1,943 16	-	£. 876 5 2,980 273 16	-	-	-
TOTAL Returns and Credits	£. 4,324	-	-	209	£. 3,054	£. 458	£. 2,630	-	£. 7,375	-	-	-
Net Charge	£. 14,843	£. 15,152	£. 286	-	£. 5,556	£. 563	£. 2,840	£. 1,904	-	£. 15,729	£. 17,405	£. 1,676
TOTAL	-	£. 30,281	-	£. 1,251	£. 6,119	£. 6,119	£. 4,744	-	£. 42,395	-	-	£. 59,800
GRAND TOTAL												£. 59,800

{ Difference between
(A) and (B).
Total Net Charge.
Incidental Charges.

— No. 4. —

D. PAPERS handed to the Controller by Mr. *Fellows* on 11 April 1867.

INDEX OR LIST OF PAPERS.

	PAGE.		PAGE.
(1.)—Brief Statement of cost and figures <i>re</i> "Frederick William"	8	(8.)—Detailed Statement showing the per-centages to be added to Admiralty given cost of ships for the years 1847 to 1857-8	16
(2.)—Ditto - - ditto - - repairs, &c. of "Brisk"	9	(9.)—Detailed Statement as (7), but calculated on a different basis	18
(3.)—Ditto - - ditto - - repairs, &c. of "Cadmus"	10	(9A.)—Statement and figures connected with (9)	19
(4.)—Detailed Statement showing how the cost and figures relating to "Frederick William," Statement 1, are obtained	11	[Statement for 1864-5 from which (7.), (9.), and (9A.), obtains some data	21
(5.)—Detailed Statement showing how the cost and figures relating to "Brisk," Statement 2, are obtained	12	Ditto - 1863-4 - - ditto - - - - -	21
(6.)—Detailed Statement showing how the cost and figures relating to "Cadmus," Statement 3, are obtained	13	Ditto - 1862-3 - - ditto - - - - -	22
(7.)—Detailed Statement showing the per-centages to be added to Admiralty given cost of ships for the years 1858 to 1864-5, giving Total Amounts ships built, fitted, repaired, and refitted, &c. On this Statement (4.), (5.), (6.), details of 3 ships, and (1.), (2.), (3.), brief Statement of 3 ships are based	14	Ditto - 1861-2 - - ditto - - - - -	22
		Ditto - 1860-1 - - ditto - - - - -	22
		Ditto - 1859-60 - - ditto - - - - -	23
		Ditto - 1858-9 - - ditto - - - - -	23
		(11.)—Brief Digest of Mr. Seely's balance sheet of 6 March 1865 (<i>see</i> Hansard), examined by Admiralty; data as in this in part adopted in Admiralty Accounts for 1864-5, No. 44, published 16 February 1866; and also in Army Manufacturing Accounts, published since March 1865	24

(1.)

"FREDERICK WILLIAM."

otation Hansard, The "Frederick William" cost £. 281,691, and could be built new in a Private Yard for £. 134,453.

Mr. Seely having pointed out (*see* Hansard, vol. 184, page 1506-1507) that the Admiralty in Navy Ships Accounts for 1864-5, had omitted a charge for Interest and Pensions to Artificers amounting to 239,082 *l.*, of which he gave details; or a charge of 558,727 *l.* if reckoned as the Army Manufacturing Accounts have been reckoned for in accordance with Mr. Seely's suggestions and balance sheets (*see* Hansard, 3 April 1865, vol. 178, page 705-6, and vol. 186, 375-6-7), exhibited to and examined by the Admiralty, admitted to be correct and adopted in part in Navy Accounts for 1864-5, published 16 February 1866 (*see* Mr. Seely's speech, 3 April 1865, Hansard, vol. 178, page 708, copy herewith) proceeded to state that in accordance with this,—

The "Frederick William," of 74 guns, 3,241 tons, and 500 horse-power, had cost the country in building - £. 281,691
And that she could be bought, built new in "*private yards*," at 33 *l.* per ton, and 55 *l.* per horse, or for - 134,453

	£.		£.
Ret. 44, for Gives amount expended before 1864-5	196,357	Cost of new "Frederick William," if built	
1864-5 p. 4-5. Items omitted by Admiralty about	78,542	in a private yard:	
40 per cent. (<i>see</i> balance sheet, No. 11).		3,241 tons at 33 <i>l.</i> per ton - - - -	106,953
p 4-5. Gives amount expended in 1864-5 -	6,792	500 horse at 55 <i>l.</i> per horse - - - -	27,500
Items omitted in 1864-5, say nil -	—		
Thus reckoned—} £.	281,691	If built new in a private	
TOTAL Cost is - }		yard—TOTAL Cost - }	£. 134,453

The more detailed accounts of Cost of "Frederick William," as per sheet, No. 4, page 11, and Balance Sheet, Nos. 7 and 9, pages 14 and 18), also show that—

The Admiralty given expenditure upon the "Frederick William" up to 1st April 1865 was - £. 205,513

And that—

	£.	As per Sheet 4, page 11, and Balance Sheet 7, page 14.	As per Sheet 4, page 11, and Balance Sheet 9, page 18.
Cost, reckoning for all years, items as reckoned by Admiralty in the year 1864-5 (called Method No. 3), <i>see</i> sheet 4, page 11.	251,679		263,613
Cost, reckoned as Admiralty in 1864-5, but adding 239,082 <i>l.</i> thereto omitted by Admiralty, as explained by Mr. Seely (called in sheet 4, page 11, Method No. 4), <i>see</i> quotation, p. 29	270,031		281,965
Cost, reckoned as Admiralty in 1864-5, but adding 558,727 <i>l.</i> thereto, in accordance with method adopted with the Army Manufacturing Accounts, as explained by Mr. Seely (called in sheet 4, page 11, Method No. 5), <i>see</i> quotations, pp. 29-30.	320,222		332,156

Frank P. *Fellows*.

(2.)

“B R I S K.”

The “Brisk” had cost £. 43,498 in repairs, &c., and could be built new in a private yard for - - - - -

£.
49,621

*See quotation from
Hansard, p. 30.*

The “Brisk,” of 16 guns, 1,087 tons, and 250 horse, at £. 33 per ton, and £. 55 per horse, would cost - - - - -

49,621

It is only necessary to give the Cost of Repairs, &c., in accordance with the Detailed Account, as on Statement No. 5 : Statement will be as follows :—

	For the Four Years, 1861-2 to 1864-5.	For the Seven Years, 1858-9 to 1864-5.	
	£.	£.	
The Admiralty given Cost of Repairing, Refitting, &c., the “Brisk” - - - - -	39,211	50,270	
Cost of Repairing, &c., if reckoned for all Years, as Admiralty reckon in 1864-5 (Method No. 3) - - -	41,973	56,108	
Cost of Repairing, &c., if reckoned as Mr. Seely (called Method No. 4) - - - - -	45,531	60,906	<i>See quotation, p. 29.</i>
Cost of Repairing, &c., if reckoned as Mr. Seely, as Army Manufacturing Accounts (called Method No. 5) - -	52,438	69,585	<i>See quotation, pp. 29-30.</i>

So that cost of Repairs, instead of being, as stated by Mr. Seely (Method No. 4.) - - - - -

£.
43,498 for 4 years,

Is, according to Mr. Seely’s first-named method, in speech (Method No. 4) - - - - -

45,531 for 4 years, and 60,906 l. for 7 years.

And, according to his second method, or reckoned as Army Accounts (Method No. 5.) - - - - -

52,438 for 4 years, and 69,585 l. „

And a New Vessel could be bought for - - - - -

49,621.

Frank P. Fellows.

(3.)

"C A D M U S."

quotation from The "Cadmus" had cost in repairs, &c., £. 65,800, and would cost new in a £.
 nsard, p. 30. private yard - - - - - 68,378
 ("Cadmus," 21 guns, 1,466 tons, and 400 horse.)

Cost of "Cadmus" in private yard was estimated at £. 33 per ton, and £. 50
 per horse, and at this price would cost - - - - - 68,378

It is only necessary to give Cost of Repairs, &c., as on Detailed Statement, on sheet 6,
 page 13, Statement will be—

	For the Four Years, 1861-2 to 1864-5.	For the Seven Years, 1858-9 to 1864-5.
The Admiralty given Cost of the Repairs, &c. of the "Cadmus," is - - - - -	£. 61,574	£. 73,716
The Cost reckoned for all Years, as Admiralty reckoned in 1864-5 (Method No. 3), is - - - - -	63,855	78,432
quotation, p. 29. The Cost, reckoned as Mr. Seely's first-named plan (Method No. 4), is - - - - -	70,529	85,909
quotation, p. 29-30. The Cost, reckoned as Mr. Seely's second-named plan (Method No. 5), that is, as the Army Manufacturing Accounts, is - - - - -	77,828	94,669

So that Cost of Repairs, instead of being, as stated £.
 by Mr. Seely, only - - - - - 65,800 for 4 years,

Is, according to Mr. Seely's first-named plan (Method
 No. 4) - - - - - 70,529 for 4 years, and 85,909 for 7 years.

And, according to his second plan, that is as the
 Army Accounts are made out (Method No. 5) - 78,231 for 4 years, and 94,669 for 7 years.

Frank P. Fellows.

"FREDERICK WILLIAM."

STATEMENT showing the Total Cost of the Building, Fitting, &c. (including Cost of Engines) of the "Frederick William," 74 Guns, 3,241 Tons, 500 Horse-power, as follows:—
 1st. Admiralty given Amounts as extracted from Admiralty Navy Ships Accounts; 2nd. Admiralty given Cost in Yearly Amounts; 3rd. Method No. 3, *i. e.*, Cost reckoned as the Admiralty reckoned Cost of Ships for 1864-5; 4th. Method No. 4, Cost reckoned on Mr. Seely's first data; 5th. Method No. 5, Cost reckoned on Mr. Seely's Second Data, *i. e.* as the Army Manufacturing Accounts are reckoned. The Per-centages and Amounts added to Admiralty given Cost for Methods 3, 4, and 5, are in accordance with Statement and Figures on Sheet 7, page 15, except that in Column 6 are added the Per-centages and Amounts that would have to be added if this Account had been calculated on the principle of Sheet 9, page 18.

NAVY SHIPS ACCOUNTS.	Number.	Page.	Col. 1. Admiralty Given Cost in Navy Ships Accounts.	Col. 2. Admiralty Given Cost in Yearly Amount as from Navy Ships.	Col. 3. Method No. 3. Cost reckoned as Admiralty in 1864-5.			Col. 4. Method No. 4. Cost reckoned as Mr. Seely.			Col. 5. Method No. 5. Cost reckoned as in Army Manufacturing Accounts.			Col. 6. If Incidental Expenses reckoned as in Statement 9, page 18, Amounts must be added as below.
					Adds per Cent.	Adds in Amount.	Leaving Total.	Adds per Cent. to Admiralty Cost.	Adds in Amount.	Leaving Total.	Adds per Cent. to Admiralty Cost.	Adds in Amount to Admiralty Cost.	Leaving Total.	
174	6		£. = 82,722	£. s. 82,722 +	30 or	£. 24,817	£. 107,539	42½	£. 34,156	£. 116,878	60	£. 49,633	£. 132,355	£. s. 10 8,272
27	6		= 58,793	60,372 +	18½ or	11,336	71,708	25	15,093	75,465	35	21,130	81,502	2½ 1,500
27	15		= 1,579	26,807 +	21½ or	5,696	32,503	30	7,441	34,248	40	10,728	37,535	3¼ 1,005
44	10		= 12,447	7,066 +	13½ or	934	8,000	23½	1,680	8,746	36½	2,563	9,629	3¼ 264
44	19		= 14,360	16,213 +	17½ or	2,836	19,049	27½	4,459	20,672	45	7,296	23,509	5 815
160	12		= 7,045	3,131 +	17½ or	547	3,678	27½	861	3,992	42½	1,289	4,420	2½ 78
160	12		= 16,213	9,202 +	-	-	9,202	-	828	10,030	22½	2,070	11,272	- -
48	19		= 3,131	205,513	-	46,166	251,679	-	64,518	270,031	-	114,709	320,222	- -
514	18		= 6,792	11,934	-	11,934	11,934	-	11,934	11,934	-	11,934	11,934	- 11,934
4 and 5	44		= 2,410	58,100	-	58,100	263,613	-	76,452	281,965	-	126,643	332,156	- -
24 and 25	44		TOTALS	- - £.	-	-	-	-	-	-	-	-	-	- -

£.

203,149

2,410

205,559

Making a Total Cost to 30th March 1865 of

Or 46 l. more than I make it by abstracting each item year by year as above. Possibly I may have overlooked the 46 l.

The Totals are, however, sufficiently near for purposes of comparison.

Frank P. Fellows.

(5.)

"BRISK."

STATEMENT showing the Total Cost of Repairing, Refitting, &c., the "Brisk," of 16 Guns, 1,087 Tons, and 250 Horse, during the four Years 1861-2 to 1864-5, and also during the Seven Years 1858-9 to 1864-5.—1st. Taking Cost of Repairs, &c. as given by the Admiralty in "Navy Ships" Accounts, Col 1.—2nd. Cost reckoned as in the Admiralty Navy Ships Accounts for the Years 1861-4 5, i.e. Method No. 3, Col 2.—3rd. Cost as reckoned by Mr. Seely's first Plan, i.e. Method No. 4, Col. 3.—4th. Cost reckoned as Mr. Seely's second Plan, i.e. as Army Manufacturing Accounts are reckoned, Method No. 5, Col. 4. The Per-centages and Amounts added are in accordance with Statement 7, page 14, except that in Col. 5 are entered the additional Per-centages and Amounts that would be added were the Cost of the "Brisk" here calculated in accordance with Statement 9, page 18, instead of with Statement 9, page 18. The Totals for both the Four and the Seven Years are given in the Amounts as they would be according to Statement 7, page 14, and also Statement 9, page 18.

Return Number.	Page.	NAVY SHIPS.	Col. 1.		Col. 2.		Col. 3.		Col. 4.		Col. 5.	
			Admiralty Given Cost of Refitting, &c. as in Navy Ships Accounts.		Method No. 3. Statement 7, page 14, i.e. Cost reckoned as Admiralty reckoned Cost of Ships for 1864-5. See Return 44, published February 1866.		Method No. 4. See Statement 7, page 4. Cost reckoned as Mr. Seely, adds 239,082 £. Yearly to all Ships over Amount as in 1864-5.		Method No. 5. See Statement 7, page 14. Cost reckoned as Mr. Seely, as Army Manufacturing Accounts, adds 558,727 £. to Accounts as in 1864-5.		If Incidental Expenses were reckoned as Statement 9 instead of as in Statement 7, the following Per-centages and Amounts must be added.	
			Adds Per Cent.	Adds in Amount.	Leaving Total Cost.	Adds per Cent.	Adds in Amount.	Leaving Total Cost.	Adds Per Cent.	Adds in Amount.	Adds Per Cent.	Adds in Amount.
44	14-15	1864-5. Refitting, Repairs, &c.		£. 23,408	£. 23,408	9	£. 2,106	£. 25,514	22 ½	£. 6,412	2 ½	£. 20,820
514	13	1863-4. " "	17 ½ or	2,332	14,985	27 ½	3,298	16,051	42 ½	5,420	5	18,173
48	14	1862-3. " "	17 ½ or	2	12	27 ½	3	13	43	4	14	14
160	16	1861-2. " "	13 ¾ or	528	3,563	23 ¾	913	3,953	36 ¼	1,391	3 ¾	5,231
		1861-2 to 1864-5, 4 years Total, in accordance with Statement 7, page 14.	-	2,762	41,973	-	6,320	45,591	-	13,227	-	52,438
		If made out in accordance with Statement 9, page 18, 356 £. would have to be added for 4 years	-	356	356	-	356	356	-	356	-	356
		Leaving 1861 to 1864-5, 4 years Total, in accordance with Statement 9, page 18	-	3,118	42,329	-	6,676	45,887	-	13,583	-	52,794
44	12	1860-1. Refitting, Repairs, &c.	21 ½ or	411	2,346	30	580	2,515	40	774	3 ¾	2,709
27	8	1859-60. " "	18 ¾ or	165	949	25	196	980	35	274	2 ½	1,058
174	15	1858-9. " "	30 or	2,500	10,840	42 ½	3,540	11,880	60	5,040	10	13,380
		1858-9 to 1860-1, 3 years, as Statement 7, page 14	-	3,076	14,135	-	4,216	15,375	-	6,038	-	17,147
		1858-9 to 1864-5, 7 years, as Statement 7, page 14	-	5,838	56,108	-	10,636	60,906	-	19,315	-	69,585
		If made out as Statement 9, page 18, 7 years, adds 1,190 £.	-	1,290	1,290	-	1,290	1,290	-	1,290	-	1,290
		Leaving Total, 7 years 1858-9 to 1864-5, as Statement 9, page 18	-	7,128	57,398	-	11,926	62,196	-	20,605	-	70,875

STATEMENT showing the Total Cost of Repairing, Refitting, &c., the "Cadmus," of 21 Guns, 1,466 Tons, and 400 Horse Power, during the Four Years 1861-2 to 1864-5; and also during Seven Years, from 1858-9 to 1864-5.—1st. Taking the Cost of Repairs, &c., as given by the Admiralty in their published "Navy Ships" Accounts.—2nd. Calculating Cost for each Year as Admiralty-reckoned Cost of Ships in the Year 1864-5, Method 3, Col. 2.—3rd. Calculating Cost as reckoned by Mr. Seely's First Plan, i.e. Method, No. 4 Col. 3.—4th. Calculating Cost as in Mr. Seely's Second Plan, or as the Army Manufacturing Accounts are now reckoned, i.e., Method, No. 5, Col. 4. The Per-centages and Amounts added are in accordance with Statement 7, page 14, except that in Col. 5 are entered the additional Per-centages and Amounts that would be added if calculations were made on basis of Statement 9, page 18.

NAVY SHIPS ACCOUNTS.		Col. 1.	Col. 2. Method No. 3, as Statement 7, Page 14, i.e. Cost reckoned as Admiralty reckoned Cost of Ships for 1864-5, published Return 44, published 16 February 1866.			Col. 3. Method No. 4, as Statement 7, Page 14, i.e. Cost reckoned as Mr. Seely; this adds 239,082 £. to Admiralty given Cost, as reckoned in 1864-5, to all the Ships Built, Repaired, &c., in 1864-5.			Col. 4. Method No. 5, as Statement 7, Page 14, i.e. Cost reckoned as Mr. Seely, as Army Manufacturing Accounts; this adds 558,727 £. to Admiralty given Cost of all Ships as reckoned by Admiralty in 1864-5.			Col. 5. If Incidental Expenses were reckoned as in Statement 9 instead of as in Statement 7, the following Per-centages and Amounts must be added.
Return Number.	Page.	Admiralty given Cost of Repairing, &c., the "Cadmus," as in Navy Ships Accounts for each Year.	Adds per Cent.	Adds in Amount.	Leaving Total Cost.	Adds per Cent.	Adds in Amount.	Leaving Total Cost.	Adds per Cent.	Adds in Amount.	Adds per Cent.	Adds in Amount.
44	14 to 15	£. 48,327	-	-	£. 48,327	9	5,349	£. 53,676	22½	£. 59,201	-	£. —
514	14	9,820	17½ or	1,720	11,540	27½	2,701	12,521	42½	13,748	2½	245
48	14	2,419	17½ or	423	2,842	27½	665	3,084	45	3,508	5	120
160	16	1,008	13½ or	138	1,146	23½	240	1,248	36½	1,371	3½	38
		61,574	-	2,281	63,855	-	8,955	70,529	-	77,928	-	-
		-	-	403	403	-	403	403	-	403	-	403
		-	-	2,684	64,258	-	9,358	70,932	-	78,231	-	-
44	12	1,101	21½ or	253	1,444	30	357	1,548	40	1,607	3½	45
27	8	9,786	18½ or	1,837	11,623	25	2,446	12,232	35	13,210	2½	245
174	15	1,165	30 or	345	1,510	42½	495	1,660	60	1,864	10	117
		12,142	-	2,435	14,577	-	3,218	15,440	-	16,741	-	-
		-	-	407	407	-	407	407	-	407	-	407
		-	-	2,842	14,984	-	3,705	15,847	-	17,148	-	-
		73,716	-	4,716	78,432	-	12,253	85,969	-	94,569	-	-
		-	-	910	910	-	910	910	-	910	-	910
		-	-	5,626	79,342	-	13,163	86,879	-	95,479	-	-
		-	-	-	-	-	-	-	-	-	-	-

Frank P. Fellows.

(7.)

STATEMENT showing the Cost of Ships Built, Fitted, Repaired, and Refitted, &c., in Her Majesty's Dockyards at Home to and in the year 1860-1.—2nd. As the Admiralty calculated in 1861-2 to 1863-4.—3rd. As the Admiralty calculated last-named Method, in Speech, *i.e.*, according to the Method adopted in the Army Accounts published since Mr. Seely's

Note.—The Statement is made out by calculating the actual Incidental Charges to be added for each

Col. 1. Year is from April to April (see Navy Ships Accounts).	Col. 2. Excluding Ships Built or Building by Contract. The Admiralty given Cost of Ships Built, Fitted, Repaired, and Refitted in Her Majesty's Yards, Home and Abroad, including Expenses, &c., is— (see Navy Ships Accounts).	Cost, Method No. 1.			Cost, Method No. 2.		
		Col. 3. Materials and Labour (exclusive of Engines and Boilers purchased) used in such Ships but, including "Materials" for Machinery and Engineers' Stores.	Col. 4. Cost of Engines and + Boilers, and Machinery in Ships, <i>i.e.</i> , in Ships Building and Converting.	Col. 5. Cost of Ships, including only = Material and Labour, Engines and Boilers in Ships. This is Cost as given by Admiralty up to 1860-1.	Col. 6. Incidental Expenses, <i>i.e.</i> , Materials and Labour outside Ships. Added to Cost of Ships by Admiralty, 1861-2 to 1863-4, are—	Col. 7. Incidental Expenses add Per- Centage.	Col. 8. Total Cost of Ships reckoned as Admiralty reckoned in 1861-2 to 1863-4.
	£.	£.	£.	£.	£.		£.
1864-5 - - -	2,663,943	1,777,374 Of this— Labour, home, £. 644,389 ,, abroad, 22,593 <u>£. 666,982</u>	+ 129,628	= 1,907,002	+ 375,421	-	= 2,282,423
Adds to Admiralty given cost of ships in all cases.	- - - -	- - - -	- - - -	- - - -	- - - -	-	- - - -
1863-4 - - -	2,160,901	1,748,435 Of this— Labour - £. 573,897 Police - 19,694	+ 104,633	= 1,853,068	+ 307,833	-	= 2,160,901 <i>Admiralty given cost.</i>
Adds to Admiralty given cost of ships.	- - - -	- - - -	- - - -	- - - -	- - - -	-	- - - -
1862-3 - - -	2,026,215	1,545,357 Of this— Labour - £. 511,069 Police - 31,159	+ 165,062	= 1,710,419	+ 315,796	-	= 2,026,215 <i>Admiralty given cost.</i>
Adds to Admiralty given cost of ships.	- - - -	- - - -	- - - -	- - - -	- - - -	-	- - - -
1861-2 - - -	2,400,072	1,551,771 Of this— Labour - £. 453,575 Police - 29,945	+ 540,827	= 2,092,598	+ 307,474 Incidental ex- penses and a per-centage also,	-	= 2,400,072 <i>Admiralty given cost.</i>
Adds to Admiralty given cost of ships.	- - - -	- - - -	- - - -	- - - -	- - - -	-	- - - -
1860-1 - - -	2,966,532	2,315,049 Of this— Labour - £. 655,163 Per-centage charge - 48,694	+ 651,483	= 2,966,532 <i>Admiralty given cost.</i>	+ 311,003 Incidental only,	-	= 3,277,535
Adds to Admiralty given cost of ships.	- - - -	- - - -	- - - -	- - - -	311,003 or 11½	-	- - - -
1859-60 - - -	3,530,755	3,069,770 Of this— Labour - £. 757,081 Police - 25,933	+ 460,985	= 3,530,755 <i>Admiralty given cost.</i>	+ 343,136 Incidental only,	-	= 3,873,891
Adds to Admiralty given cost of ships.	- - - -	- - - -	- - - -	- - - -	343,136 or 10	-	- - - -
1858-9 - - -	1,821,208	1,570,212 Of this— Labour - £. 411,612 Police - 24,963	+ 250,996	= 1,821,208 <i>Admiralty given cost.</i>	+ 248,001 Incidental only,	-	= 2,069,209
Adds to Admiralty given cost of ships.	- - - -	- - - -	- - - -	- - - -	248,001 or 13½	-	- - - -

* Items in Col. 9 are calculated from the Naval Receipt and Expenditure Accounts. I add for each year, as Admiralty have in 1864-5, the to ships for such articles by the Admiralty. In the Manufacturing Accounts before 1862-3, cost only of articles made is published. I have also about the average of the three years 1862-3 to 1863-4 and 1864-5; I have, therefore, added the same amount as in 1862-3. I give the thousands more or less than the amounts I have given.

(7.)

and Abroad for each Year from 1858-9 to 1864-5:—1st. Calculated as the Admiralty calculated the Cost of Ships up Cost of Ships for 1864-5.—4th. According to Mr. Seely's first-named Method, in Speech.—5th. According to Mr. Seely's Speeches and Statement 11, pp. 24 & 25, of 6 March 1865, and 16 June 1865.

Year, and not by taking them for each Year as being the same in Amount as in 1864-5.

Cost, Method No. 3.			Cost, Method No. 4.			Cost, Method No. 5.			
Col. 9.	Col. 10.	Col. 11.	Col. 12.	Col. 13.	Col. 14.	Col. 15.	Col. 16.	Col. 17.	
Additional Items added for Incidental Expenses in Admiralty Accounts for 1864-5, are—	And they add a Per Centage. of—	Cost of Ships reckoned as Admiralty reckon in 1864-5.	Per Centage for Interest and Pensions; Artificers to be added as explained by Mr. Seely, adds to Admiralty Cost, as reckoned by Admiralty in 1864-5, 239,082 l.	Adds Per-Centage to—	Cost, adding Interest and Pensions, Artificers, as Mr. Seely.	Per-Centage for Interest, Pensions, and Depreciation, reckoned as Mr. Seely, as Army Accounts, adds to Admiralty Cost as reckoned in 1864-5, 558,727 l. +	Adds, Per-Centage.	Total Cost reckoned as Mr. Seely, as the Army Accounts are reckoned since Mr. Seely pointed out similar Omissions for the Navy on 6 March 1865 and 16 June 1865.	
£.		£.	£.		£.	£.		£.	
+ 381,520	-	= 2,663,943 <i>Admiralty given cost.</i>	+ 239,082	-	= 2,903,025	558,727	-	= 3,222,770	1864-5.
-	-	-	239,082	or 9	-	558,727	or 22½	-	Adds to Admiralty given cost of ships.
+ 380,000*	-	= 2,540,901	+ 239,082	-	= 2,779,983	558,727	-	= 3,099,628	1863-4.
380,000	or 17½	-	619,082	or 27½	-	938,727	or 42½	-	Adds to Admiralty given cost of ships.
+ 350,000*	-	= 2,376,215	+ 239,082	-	= 2,615,297	558,727	-	= 2,934,942	1862-3.
350,000	17½	-	589,239	27½	-	908,727	or 45	-	Adds to Admiralty given cost of ships.
+ 330,000*	-	= 2,730,072	+ 239,082	-	= 2,969,154	558,727	-	= 3,288,799	1861-2.
330,000	18½	-	569,082	23½	-	888,727	or 36½	-	Adds to Admiralty given cost of ships.
+ 320,000*	-	= 3,597,535	+ 239,082	-	= 3,836,617	558,727	-	= 4,156,262	1860-1.
631,003	21½	-	870,085	or 30	-	1,189,730	or 40	-	Adds to Admiralty given cost of ships.
+ 300,000*	-	= 4,173,891	+ 239,082	-	= 4,412,973	558,727	-	= 4,732,618	1859-60.
643,126	18½	-	882,218	or 25	-	1,201,863	or 35	-	Adds to Admiralty given cost of ships.
+ 300,000*	-	= 2,369,209	+ 239,082	-	= 2,608,291	558,727	-	= 2,927,936	1858-9.
548,001	or 30	-	787,083	or 42½	-	1,106,728	or 60	-	Adds to Admiralty given cost of ships.

excess cost of articles made over and above the rate book price of the said articles, the rate book price and not the cost being the charge made assumed, therefore, that for years previous to 1862-3, the excess of cost over rate book value would be about the same as in 1862-3, which is total sum to be added in round numbers; I have, however, calculated for each year, and the real amounts will be found to be only a few

Frank P. Fellows.

(8.)

No NAVY SHIPS ACCOUNTS being published by the Admiralty before 1858-9, I have extracted the Data on which the following figures are based from a Report of Admiral Sir B. W. Walker. The Statement below is made in order to ascertain the Approximate Per-centages to be added to Admiralty given Cost of Ships for Years previous to 1858-9.—F. P. Fellows.

			H O M E.	FOREIGN.	Cost as Reckoned by the Admiralty, Home and Foreign.	Incidental Charges Omitted by Admiralty as Reckoned 1861-2 to 1863-4.	Gives Cost if Reckoned as Admiralty Reckoned in 1861-2 to 1863-4.	Cost Reckoned as Admiralty Reckon in 1864-5; Incidental Charges as added 1864-5, taken up to 1853-4 as 250,000 £., and after taken as 1858-9, 1859-60, viz., 300,000 £.	Adds to Admiralty given Cost per Cent. about.
			£.	£.	£.	£.	£.	£.	£.
1848-9	-	-	-	-	885,681	206,782	1,092,413		
	-	-	-	-	236,308				
	-	-	-	-	5,486				
	-	-	-	-	1,127,475	206,782	1,334,207	1,584,207	42½
	-	-	-	-					
1849-50	-	-	-	-	976,683	209,042	1,185,725		
	-	-	-	-	127,099				
	-	-	-	-	4,000				
	-	-	-	-	1,107,782	209,042	1,316,824	1,566,824	42½
	-	-	-	-					
1850-1	-	-	-	-	967,476	188,533	1,156,009		
	-	-	-	-	37,121				
	-	-	-	-	3,490				
	-	-	-	-	1,008,087	188,533	1,196,620	1,446,620	45
	-	-	-	-					
1851-2	-	-	-	-	819,710	180,557	1,000,267		
	-	-	-	-	99,916				
	-	-	-	-	1,640				
	-	-	-	-	921,266	180,557	1,101,823	1,351,823	45
	-	-	-	-					

1852-3	Materials Engines, &c. Other machinery, &c.	- - -	- - -	810,564	32,041	842,605 201,871 5,382	186,391	1,028,996	
	Materials, with engines and boilers—Total	-	-	-	-	1,049,358	186,391	1,135,749	1,385,749
1853-4	Materials Engines, &c. Other machinery, &c.	- - -	- - -	1,007,468	31,342	1,038,810 136,627 5,160	187,615	1,226,425	
	Materials, with engines and boilers—Total	-	-	-	-	1,174,597	187,615	1,362,912	41½
1854-5	Materials Engines, &c. Other machinery, &c.	- - -	- - -	1,562,475	39,615	1,602,090 827,800 15,087	197,747	1,799,837	
	Materials, with engines, &c.—Total	-	-	-	-	2,444,977	197,747	2,642,724	22½
1855-6	Materials Engines, &c. Other machinery, &c.	- - -	- - -	1,684,928	76,628	1,761,556 1,157,388 30,387	268,888	2,030,444	
	Materials, with engines, &c.—Total	-	-	-	-	2,949,331	268,831	3,217,662	20
1856-7	Materials Engines, &c. Other machinery, &c.	- - -	- - -	1,402,074	60,512	1,462,586 751,648 21,508	309,553	1,772,139	
	Materials, with engines and boilers—Total	-	-	-	-	2,235,742	309,553	2,545,295	30
1857-8	Materials Engines, &c. Other machinery, &c.	- - -	- - -	1,927,402	65,869	1,993,271 344,785 10,186	256,407	1,559,678	
	Materials, with engines and boilers—Total	-	-	-	-	1,648,242	256,407	1,905,649	45

It will be seen from the above that, roughly, about 40 per cent. must be added to the Admiralty-given cost of ships from 1848 to 1858, to get the cost, reckoning items as reckoned in Admiralty Navy Ships Accounts for 1864-5, *i.e.* Method No. 3. About 50 per cent. must be added if reckoned as Mr. Seely, Method No. 4. About 60 must be added if reckoned as Army Manufacturing Accounts, Method No. 5.

Note.—This Balance Sheet will only apply to the "Frederick William" in the present case. It will be seen, however, that to the expenditure in above years on the "Frederick William," for Method 3, instead of adding 40 per cent., I have only added 30 per cent. For Method 4, instead of 50%, only 42½. For Method 5, 60 per cent., as stated above. In fact, I have taken all years previous to 1858-9 at the same per-centage of addition for each method as in 1858-9; and I have been thus compelled to estimate for a series of years, because I have no means of knowing the amounts spent upon the "Frederick William" in any particular year before 1858-9.

Frank P. Fellows.

PAPERS RELATING TO THE

STATEMENT showing the approximate Cost of Ships Built, Fitted, Repaired, &c. in Her Majesty's Dockyards at Home and Abroad for each Year from 1858-9 to 1864-5, calculated as follows:—1st. As the Admiralty calculated the Cost of Ships up to and in the year 1860-1; 2nd. As the Admiralty calculated in the years 1861-2, 1862-3, and 1863-4; 3rd. As the Admiralty calculated in the year 1864-5; 4th. According to Mr. Seely's First-named Method; 5th. According to Mr. Seely's Second Method; and as the Army Accounts are made out.

Note.—This Statement reckons the Incidental Charges added in 1864-5 by Admiralty to Ships, at the same amount for each preceding year, and in so far is liable to be slightly inaccurate.

	METHOD No. 1.		METHOD No. 2.		METHOD No. 3.		METHOD No. 4.			METHOD No. 5.	
	Total Admiralty given Cost of Ships Built, Fitted, Repaired, &c., in Commission and Reserve, as per Admiralty Navy Ships Accounts.	Materials and Labour, including Machinery in the Ships, but excluding all Materials and Labour and Charges incidental to Shipbuilding. This is really the Admiralty given Cost of Ships for 1858, 1859, 1860, except that in these years Wages of Police for 1858.	Materials and Labour incidental to Shipbuilding, as added to Admiralty given Cost of Ships for 1861-2-3, &c. Add to Cost of Ships for 1858-9-60, and And add a per Centage to Materials and Labour in Ships.	Making the Cost of Ships, reckoned as Admiralty reckon in 1861-2-3.	Cost of Ships reckoned for all Years as the Admiralty have reckoned Cost of Ships in 1864-5, would add	Cost of Ships reckoned as Mr. Seely, would add to Cost of Ships	Cost of Ships reckoned as Mr. Seely, the Cost of Ships would add to Cost of Ships	Making the Cost of Ships reckoned as Mr. Seely, would add to Cost of Ships	Cost of Ships reckoned as are the Army Manufacturing Accounts, would add to Cost of Ships	In Amount.	In per Centage.
1864-5	£. 2,663,943	£. 1,907,002	£. 2,232,423	£. 756,941	£. 2,663,943	£. 239,082	£. 2,903,045	£. 558,727	£. 3,222,770	-	-
Adds to materials and labour in ships, i. e. cost of ships in 1858-9-60	-	-	-	756,941	-	996,023	-	1,315,668	-	-	-
Adds to ditto and incidental materials and labour, i. e. cost of ships in 1861-2-3	-	-	-	381,520	-	620,602	-	940,247	-	-	-
Adds to Admiralty given cost as made up in 1864-5	-	-	-	-	-	239,082	-	558,727	-	-	-
1863-4	£. 2,160,901	£. 1,853,068	£. 2,160,901	-	£. 2,610,009	£. 239,082	£. 2,849,091	£. 558,727	£. 3,168,736	20	-
Adds to Admiralty cost as in 1860-1	-	-	-	-	-	996,023	-	1,315,668	-	-	-
Adds to Admiralty cost as in 1861-2-3-4	-	-	-	-	-	688,190	-	1,007,835	-	-	-
Adds to Admiralty cost as in 1864-5	-	-	-	-	-	239,082	-	558,727	-	-	-
Adds to Admiralty given cost	-	-	-	-	-	688,190	-	1,007,835	-	-	-
1862-3	£. 2,026,215	£. 1,710,419	£. 2,026,215	£. 441,145	£. 2,467,360	£. 239,082	£. 2,706,442	£. 558,727	£. 3,026,087	50	-
Adds to Admiralty cost as in 1860-1	-	-	-	441,145	-	996,023	-	1,315,668	-	-	-
Adds to Admiralty cost as in 1861-2-3-4	-	-	-	756,941	-	680,227	-	999,872	-	-	-
Adds to Admiralty cost as in 1864-5	-	-	-	-	-	239,082	-	558,727	-	-	-
Adds to Admiralty given cost	-	-	-	-	-	680,227	-	999,872	-	-	-
1861-2	£. 2,400,072	£. 2,092,598	£. 2,400,072	£. 441,145	£. 2,849,589	£. 239,082	£. 3,088,621	£. 558,727	£. 3,408,266	50	-
Adds to Admiralty cost as in 1860-1	-	-	-	441,145	-	996,023	-	1,315,668	-	-	-
Adds to Admiralty cost as in 1861-2-3-4	-	-	-	756,941	-	688,549	-	1,008,194	-	-	-
Adds to Admiralty cost as in 1864-5	-	-	-	-	-	239,082	-	558,727	-	-	-
Adds to Admiralty given cost	-	-	-	-	-	688,549	-	1,008,194	-	-	-
1860-1	£. 2,966,532	£. 2,966,532	£. 3,277,535	£. 311,003	£. 3,673,779	£. 239,082	£. 3,912,861	£. 558,727	£. 4,232,566	45	-
Adds to Admiralty cost as in 1860-1	-	-	-	311,003	-	996,023	-	1,315,668	-	-	-
Adds to Admiralty cost as in 1861-2-3-4	-	-	-	311,003	-	635,326	-	954,371	-	-	-
Adds to Admiralty cost as in 1864-5	-	-	-	-	-	239,082	-	558,727	-	-	-
Adds to Admiralty given cost	-	-	-	-	-	936,329	-	1,265,974	-	-	-
1859-60	£. 3,530,755	£. 3,530,755	£. 3,873,891	£. 343,136	£. 4,201,763	£. 239,082	£. 4,500,855	£. 558,727	£. 4,820,490	42½	-
Adds to Admiralty cost as in 1860-1	-	-	-	343,136	-	970,090	-	1,280,735	-	-	-
Adds to Admiralty cost as in 1861-2-3-4	-	-	-	343,136	-	626,954	-	946,359	-	-	-
Adds to Admiralty cost as in 1864-5	-	-	-	-	-	239,082	-	558,727	-	-	-
Adds to Admiralty given cost	-	-	-	-	-	970,090	-	1,280,735	-	-	-
1858-9	£. 1,821,208	£. 1,821,208	£. 2,069,209	£. 248,001	£. 2,553,186	£. 239,082	£. 2,793,268	£. 558,727	£. 3,111,913	36½	-
Adds to Admiralty cost as in 1860-1	-	-	-	248,001	-	971,000	-	1,280,705	-	-	-
Adds to Admiralty cost as in 1861-2-3-4	-	-	-	248,001	-	723,059	-	1,042,704	-	-	-
Adds to Admiralty cost as in 1864-5	-	-	-	-	-	239,082	-	558,727	-	-	-
Adds to Admiralty given cost	-	-	-	-	-	971,000	-	1,280,705	-	-	-
1857-6	-	-	-	-	-	971,000	-	1,280,705	-	-	-
Adds to Admiralty given cost	-	-	-	-	-	971,000	-	1,280,705	-	-	-

Frank P. Fellows.

(9 A.)

ACCOUNT showing the approximate per Centages to be added to the Admiralty-given Accounts of Cost of Ships Built, Fitted, Repaired, and Refitted in Her Majesty's Dockyards; for Incidental Charges, such as Wages of Foremen, Rents, Rates, Taxes, &c., added for the first time by the Admiralty in Return 44, "Navy, &c. for 1864-5," published 16th February 1866, for all Years previous to 1864-5.

Return
44.

In "Navy, &c. for 1864-5," printed 16th February 1866:—

Wages and Materials (p. 70)	£.
Add,—Engines and boilers from contractors for ships building (x & xi)	1,749,607
	157,395
Net Materials and Wages in Ships	1,907,002

Incidental Expenses,—which include in 1864-5 for first time what Admiralty have never included before, such as wages of foremen, &c., salaries at yards, rents, rates, taxes, and contingencies, surveys, valuations, freight of stores for shipbuilding, repairs and replacement of working yard plant, &c. &c., and a sum of 46,398 l. as an interest charge on final productions, amounting altogether to (see p. 70)	£.
	756,941

Or, 756,941 l. is added to Materials and Labour, *i.e.* 1,907,002 l., or about 40 per cent.

Thus the additional incidental charges or items previously omitted by the Admiralty in their published accounts of the cost of ships built and repaired, &c., at Her Majesty's Dockyards before 1864-5, but added by the Admiralty for the first time in the year 1864-5, cause a charge in 1864-5 to be added to the amount of wages and materials used in ships built and repaired, of about 40 per cent., whereas the incidental charges reckoned by the Admiralty in accounts of cost of ships built and repaired before 1864-5 were, on wages and materials only, about 16 or 17 per cent. in 1863-4, about 18 per cent. in 1862-3, and about 15 per cent. in 1861-2; whilst, before 1861-2, no incidental charges at all were reckoned in the Admiralty-given accounts of the cost of ships built and repaired at our Dockyards; although these incidental charges, added from 1861 to 1863, were known and ascertained by the Admiralty, and were published in a line apart from the cost of ships, as if they formed no part of the cost of ships. These incidental charges would add to materials and labour, in 1860-1, say 9 per cent.; 1859-60, 9½ per cent.; 1858-9, 13½ per cent.; details given below. So that I conclude that from 22½ to 25 per cent. additional has to be added to material and labour from 1861 to 1864, or say 20 per cent. has to be added to Admiralty given cost of ships from 1861 to 1864, and the whole of the incidental charges added in 1864-5 by the Admiralty have also to be added to their given accounts of cost of ships built and repaired at Her Majesty's Dockyards before the years 1861-2; therefore, reckoning as Admiralty now reckon, I add to the "Frederick William," "Brisk," and "Cadmus," per centages as follow, on the Admiralty given amounts:—

1864-5	- nil.
1863-4	say 20 per cent.
1862-3	say 20 per cent.
1861-2	say 20 per cent.
1860-1	say 25 per cent., being on a larger amount than in 1864-5.
1859-60	say 20 per cent., amount of work being double that of 1864-5.
1858-9	say 40 per cent., amount of work being small, and about as in 1864-5.

N.B.—These are only roughly approximate per centages; the more approximate per centages are on sheet 7, pp. 14-15, and the real per centages on sheet 7, pp. 14-15.

Return
No. 48.

"Navy Ships, 1863-4" (p. 4):—

Materials given as	£.
Of which ships built or building by contract are	1,864,532
	585,361
Leaves net materials, including engines and boilers for ships building in Her Majesty's Dockyards.	1,279,171
Labour is	573,897
Amount of direct Charges or Credits for Wages and Materials for Shipbuilding	1,853,068
On this amount is added by the Admiralty per centage for deterioration by use of shores, spauls, staging, &c.	26,787
Incidental expenses, such as moorings, cables, buoys, &c., repairs to cranes, carts, &c., &c.	281,046
TOTAL added	307,833

Or, 307,833 l. is added to Materials and Labour on about 1,853,068 l., or 16 to 17 per cent.

ACCOUNT showing the approximate per Centages, &c.—*continued.*Return
No. 514.

"Navy Ships, 1862-3" (p. 4):—

Materials given as (including engines)	-	-	-	-	-	-	-	-	£.	1,978,249
Less,—Contract ships	-	-	-	-	-	-	-	-		788,899
Leaves net materials	-	-	-	-	-	-	-	-		1,199,350
Labour is	-	-	-	-	-	-	-	-		511,069
TOTAL Materials and Labour										£. 1,710,419
On this—Per centage for deterioration, &c., is										27,201
Incidental expenses, as above										288,505
TOTAL added for Incidental										£. 315,796

Or, 315,796 *l.* is added to Materials and Labour, *i.e.* 1,710,419 *l.*, or about 18 per cent.

"Navy Ships, 1861-2":—

Materials - - - - -	£.
Less,—Contract ships - - - - -	2,571,346
	932,323
Leaves net materials - - - - -	1,639,023
Labour is - - - - -	453,575
TOTAL Materials and Labour - - - - £.	2,092,598

On this amount is added by the Admiralty:—

Per centage for deterioration, &c.	-	-	-	-	-	-	-	26,319
Incidental expenses, as explained	-	-	-	-	-	-	-	281,155
TOTAL added for Incidental								£. 307,474

Or, 307,474 *l.* on Materials and Labour, 2,092,598 *l.*, or 15 per cent.

In Navy Ships Accounts for 1860-61, 1859-60, and 1858-9, these incidental charges, such as moorings, cables, buoys, repairs to carts, cranes, &c. &c., are not added to the cost of ships, but are entered in a line by themselves, independently of ships. The amount and per centages to be added for these items to the Admiralty-given cost of ships before 1861-2 will be found by calculation to be—

1860-1.—311,003 *l.* on 2,966,532 *l.*, or 10½ per cent. to be added; wages of police not included by Admiralty according to accounts (p. 2).

Note.—In 1860-1, for the first time, a "per centage on materials and workmanship" of 48,694 *l.* is included in the Admiralty-given cost of ships, and is included therefore in this amount, 2,966,532 *l.*, or about 1½ per cent. has been added to Materials and Labour (materials including engines, boilers, &c. for Ships Building by Admiralty). This must be taken into account when comparing per centage to be added for 1860-1 with per centage added by Admiralty in 1864-5.

1859-60.—243,136 *l.* on 3,530,755 *l.*, or 9¼ per cent., to be added; wages of police, 25,933 *l.*, included by Admiralty in this 3,530,755 *l.* (p. 2).

1858-9.—248,001 *l.* on 1,821,208 *l.*, or 13½ per cent., to be added; wages of police included (24,963 *l.*) by Admiralty in this 1,821,208 *l.* (p. 2).

In 1859-60, and in 1858-9, the amounts 3,530,755 *l.* and 1,821,208 *l.* for Materials (including engines for ships building) and Labour, do not include any per centage nor incidental charges.

Note.—There are no Admiralty-published accounts of cost of ships built in Her Majesty's Dockyards before 1858-9.

Frank P. Fellows.

(10.)

STATEMENTS from which Sheets (7), (9), and (9a), obtain some Data.

1864-5 :	£.	£.
Materials and Wages in Ships - - - - -	1,749,607	
Cost of Engines and Boilers, &c., in Ships - - - - -	157,395	
Total Materials and Wages - - - - -	1,907,002	
Incidental Expenses, added to Navy Ships Accounts, before 1864-5, and incidental and other Expenses, such as Wages of Foremen, &c. &c., added for first time in 1864-5, amount to about 40 per cent. on Materials and Wages, or - - - - -	756,941	
This leaves the Admiralty-given Cost Ships in 1864-5 - - - - -	- - -	2,663,943
Adding items, Interest and Pensions to Artificers, as explained by Mr. Seely (<i>see p. 29</i>) - - - - -	239,082	
Leaves Cost reckoned as Mr. Seely - - - - -	- - -	2,903,025
But adding Interest and Depreciation of Plant and Machinery as reckoned by Army, in Army Manufacturing Accounts, as explained by Mr. Seely (<i>see p. 29</i>) - - - - -	558,727	
Gives Total Cost Ships reckoned as Army - - - - -	- - -	3,222,770
1863-4 :		
Materials and Labour (including Machinery) in Ships - - - - -	- - -	1,853,068
Incidental Expenses, as Moorings, Cables, &c. &c. - - - - -	- - -	307,833
Total Admiralty given Cost of Ships Built, Repaired, &c. - - - - -	- - -	2,160,901
Incidental Expenses added by the Admiralty in Accounts, No. 44, "Navy, &c., for 1864-5," published February 1866, include items omitted before, such as Wages of Foremen, &c. &c. - - - - -	756,941	
Assuming the Amount would be the same in 1863-4, I deduct amount added in 1863-4 - - - - -	307,833	
Which leaves to be added for additional Incidentals, 1863-4, to Admiralty-given Cost, about 22½ per cent., or - - - - -	- - -	449,108
Leaving Cost reckoned as Admiralty in 1864-5 Accounts - - - - -	- - -	2,610,009
But adding to this 239,082 <i>l.</i> for Interest, and Pensions to Artificers, omitted by Admiralty, as explained by Mr. Seely, gives Cost reckoned as Mr. Seely (<i>see quotation, p. 29</i>) - - - - -	- - -	2,849,091
And adding to Cost reckoned as by Admiralty in 1864-5, Interest, &c., as reckoned in Army Manufacturing Accounts, published since Mr. Seely's Speeches and Statement 11, pp. 24 and 25, of 6th March 1865, and 16th June 1865, as explained by Mr. Seely, amount (<i>see quotation, pp. 29-30</i>) - - - - -	558,727	
Gives Cost in 1863-4 reckoned as in Army Accounts - - - - -	- - -	3,168,726

	£.	£.
1862-3:		
Materials and Labour in Ships, including Cost of Engines and Machinery - - -	1,710,419	
Incidental Expenses added by Admiralty - - - - -	315,796	
Gives Total Admiralty given Cost of Ships Built, Repaired, Refitted, &c., as - - -	- - -	2,026,215
Incidental Expenses added by Admiralty in 1864-5, which include items omitted in former years, such as Wages of Foremen, &c., are - - -	756,941	
Assuming that this Amount would be the same in 1862-3, I deduct Amount added in 1862-3 - - - - -	315,796	
Which leaves to be added for Incidental Charges omitted - - - - -	- - -	441,145
Making Cost Ships Built and Repaired in 1862-3, reckoned in same manner as in Admiralty Accounts in 1864-5 - - - - -	- - -	2,467,360
Adding to this, Interest and Pensions to Artificers omitted, as explained by Mr. Seely Gives Cost as reckoned by Mr. Seely - - - - -	239,082	
But adding Interest and Pensions and deterioration of Plant and Machinery, as reckoned in Army Manufacturing Accounts, as explained by Mr. Seely, which I assume as the same for all years, as it would be sometimes more and sometimes less, amount - - - - -	- - -	2,706,442
Gives Cost of Ships Built, Fitted, Repaired and Refitted, reckoning items as in Army Manufacturing Accounts, in their Balance Sheet No. 2, as - }	558,727	
	- - -	3,026,087
1861-2:		
Materials and Labour in Ships, including cost of Engines and Machinery - - -	2,092,598	
Incidental Expenses added by Admiralty - - - - -	307,474	
Total Admiralty given Cost, Ships Built, Repaired, &c., as - - - - -	- - -	2,400,072
Incidental Expenses, added by Admiralty, in Return 44, "Navy, &c., 1864-5," which include items in former years, such as Wages of Foremen, &c. &c. - - -	756,941	
Assuming that this amount would be the same in 1861-2, I deduct amount added in 1861-2 - - - - -	307,474	
Which leaves to be still added to the Admiralty given Cost, Ships, &c., in 1861-2 - - -	- - -	449,467
Leaves Cost reckoned as in Return 44 for 1864-5 - - - - -	- - -	2,849,539
Adding to Cost reckoned as Admiralty in 1864-5, Interest, and Pensions to Artificers, Mr. Seely (Hansard) - - - - -	239,082	
Leaves Cost reckoned as explained by Mr. Seely, reckoning these items - - -	- - -	3,088,621
But adding Interest, depreciation of Plant and Machinery, Pensions to Artificers, and part Pensions to Clerks, as reckoned in Army Manufacturing Accounts, for 1864-5 Balance Sheet, No. 2, Amount 558,727 £., which I assume the same for all years as in 1864-5 - - - - -	558,727	
Leaves Total Cost Ships Built, Fitted, Repaired and Refitted, reckoned as Army Manufacturing Accounts are reckoned - - - - - }	- - -	3,408,266
1860-1:		
Admiralty-given Cost of Ships for 1860-1, does not include any items for Incidental Charges, but is merely the Cost of Materials and Labour in Ships, including Cost of Engines and Machinery, and a charge of 48,694 £. as a per-centage charge.		
Admiralty given Cost of Ships is thus - - - - -	2,966,532	
Incidental Charges as added by Admiralty 1861 to 1863-4, are - - -	311,003	
Incidental Charges as added in Admiralty Accounts of Cost of Ships for 1864-5, none of which are included in Admiralty Accounts for 1860-1, are - - - - -	756,941	
From which deduct per centage Charge, see above - - - - -	48,694	
Note.—Wages of Police are not included in 1860-1 in Wages above, at least they are not if Admiralty Statement in "Navy Ships" Account for 1860-1, p. 2, is correct, though Wages, Police, are included for 1858-9 and 1859-60.		
To be added for Incidental Charges - - - - -	707,247	
Leaving Total cost Ships, reckoned as reckoned in 1864-5 by the Admiralty, as - - -	- - -	3,673,779
Adding Interest and Pensions to Artificers as explained by Mr. Seely - - - - -	239,082	
Leaves Total Cost reckoned as Mr. Seely - - - - -	- - -	3,912,861
But adding Interest, Depreciation of Plant and Machinery, Pensions to Artificers, and part Pensions to Clerks, as are added in Army Manufacturing Accounts for 1864-5, Balance Sheet, No. 2, - - - - -	558,727	
Leaves Total Cost Ships Built, Fitted, Repaired and Refitted, reckoning items as in the Army Manufacturing Accounts - - - - - }	- - -	4,232,506

1859-60:	£.	£.
Admiralty given Cost of Ships, &c., for 1859-60 does not include any items for Incidental Charges, and is therefore merely the Materials and Wages of Labour in Ships, including Cost of Engines and Machinery; and also a Charge for Wages of Police (see "Navy Ships," p. 2) of - - £. 25,933		
This Admiralty given Cost of Ships, &c. in 1859-60, is - - - - -	3,530,755	
Incidental Charges, as added by Admiralty in 1860 to 1863-4, are - £. 343,136		
Incidental Charges added by Admiralty to amount for Materials and Labour in 1864-5 amount to (including Police) - - - - - £. 756,941		
Deducting Police as above added in 1859-60 to Materials and Labour 25,933		
Gives to be added for Incidentals in 1859-60 - - - - -	731,008	
So that Cost of Ships in 1859-60, reckoned as Admiralty reckon Cost of Ships in 1864-5, will be - - - - -	- - -	4,261,763
But to this Amount has to be added further items for Interest and Pensions to Artificers, as explained by Mr. Seely, amount (see p. 29) - - - - -	239,082	
Leaves Cost of Ships reckoned as Mr. Seely - - - - -	- - -	4,500,855
But if we reckon these Accounts as the Army Manufacturing Accounts are made up, adding Interest and Depreciation of Plant and Machinery, and Pensions Artificers, and part Pensions Clerks, we add 558,727 £., instead of 239,082 £. - - - - -	558,727	
See Mr. Seely's Speech (quoted at pp. 29-30).		
Which would give the Total Cost of Ships Built, Fitted, Re- paired, and Refitted, reckoning items as the Army - - - } £.	- - -	4,820,490
1858-9:		
Admiralty given Cost of Ships Built, &c., is only the Materials and Labour, and Cost of Engines, and a Charge for Wages of Police, 24,963 £., together -	1,821,208	
Incidental Charges for 1858-9, as added to Ships by Admiralty to Materials and Labour for 1861-2, 1862-3, and 1863-4, are - - - - - £. 248,001		
Incidental Charges, added to Admiralty, for 1864-5, Materials and Wages, were - - - - - 756,941		
But in this Amount, the Wages of Police for 1864-5 are included; ergo, deducting Wages of Police, 1858-9 - - - - - 24,963		
Leaves to be added to Materials and Wages - - - - -	731,978	
So that Cost of Ships Built and Repaired, &c., in 1858-9, if reckoned as Admiralty reckon in 1864-5, is - - - - -	- - -	2,553,186
Adding for Interest and Pensions to Artificers, amounts as explained by Mr. Seely (see p. 29) - - - - -	239,082	
Leaves Cost of Ships, reckoned as Mr. Seely - - - - -	- - -	2,793,268
But adding Interest and Depreciation of Plant, Pensions to Artificers, and part Pensions to Clerks, as are reckoned in Army Manufacturing Accounts, Balance Sheet, No. 2, would increase Cost, reckoned as Admiralty in 1864-5, by (see pp. 29-30) - - - - -	558,727	
So that Cost of Ships Built and Repaired, &c., reckoned as Army Manufacturing Accounts - - - - - } £.	- - -	3,111,913

Frank P. Fellows.

(11.)

ABSTRACT showing Items omitted by the Admiralty in their given Accounts of the Cost of Ships Building, Repairing, &c., from 1860 to 1864, and which Private Firms would have to reckon in their Accounts of the Cost of Ships Built or Repaired by them.

In Navy Ships Accounts under Numbered Headings as below.		Page.	1863-4. Return 514, Navy Ships. Total Expenditure to 31 March 1864.	Page.	1862-3. Return 48, Navy Ships. Total Expenditure to 31 March 1863.	Page.	1861-2. Return 160, Navy Ships. Total Expenditure to 31 March 1862.	Page.	1860-1. Return 44, Navy Ships. Total Expenditure to 31 March 1861.
	£.	-	5,000,000	-	£.	-	£.	-	£.
Stock of Naval Stores in Admiralty Dockyards, for Ship- building purposes.	-	-	-	-	5,000,000	-	5,000,000	-	5,000,000
Land, say, nil	-	-	-	-	-	-	-	-	-
Plant, Workshops, Machinery	-	-	2,000,000	-	2,000,000	-	2,000,000	-	2,000,000
Work in progress—Amount spent thereon to 31 March in each Year :									
1 Ships and Vessels building in Her Majesty's Dockyards -	6	6	1,117,713	6	902,814	9	2,824,119	7	3,516,825
3 Ships commenced as Wooden Ships converted to Iron-raced Ships while building.	9	9	1,338,982	9	1,102,718	-	455,495	10	772,207 (being converted to screws.)
4-5 Other Ships converted after being launched, or while building	10	10	120,784 78,366 (I omit.)	10	47,356 220,356 (I omit.)	12-13	323,720 639,188 (I omit.)	12	983,298 (I omit.)
Semi-Manufactured Stores, or Stores in the Manufactories :									
Returns to Store, and Work in hand, about 300,000 £ say, nil (I omit).	-	-	-	-	-	-	-	-	-
Depreciation of Plant and Machinery, say, nil, should be 10 per cent. Machinery, and 5 per cent. Plant (I omit),	-	-	-	-	-	-	-	-	-
Working Capital, or Advances made by Government, say, nil (I omit).	-	-	-	-	-	-	-	-	-
TOTAL - - - £.	-	-	9,456,695	-	9,005,532	-	10,278,614	-	11,289,132

Interest on above Amounts at 5 per cent. as Private Firms pay.	-	472,835	-	450,276	-	513,930	-	564,456
Wages of Foremen, &c., Rent, Cost of Gas, &c., omitted by Admiralty, but "which the Government," after the investigation at Somerset House in March 1865, admitted had been omitted, and "said would be included for the future" (see Mr. Seely's speech, Hansard, vol. 180, page 376), and which, in Return, No. 44, "Navy Dockyard Stock Valuation and Expenditure on Ships for 1864-5," "printed 16 February 1866," are for the first time added, with a certain Charge also of £.46,398 for Interest.	-	214,800	-	365,524 (see Mr. Seely's speech, Hansard, vol. 177, p. 1,198, 6 March 1865; and also vol. 180, p. 378, 16 June 1865.)	-	381,286 (see 177, 1198, 6 March 1866).	-	328,105
Pensions to Artificers - - - - -	-	73,396	-	60,000	-	60,000	-	60,000
Pensions—Foremen, Clerks, &c.: 1863-4, £. 81,875; 1862-3, £. 82,658; 1861-2, £. 84,044; 1860-1, £. 84,399, say	-	60,000	-	60,000	-	60,000	-	60,000
Admiralty Office: 1863-4, £. 166,881; 1862-3, £. 168,038; 1861-2, £. 164,053; 1860-1, £. 155,319. Analysing 1865-6 where details are given, fully £. 82,306 is chargeable to Ships, this made out by taking the half of Secretary's, Accountant Generals, Director of Works, Registrar of Contracts, and Law Departments, all of Storekeepers and Controllers, and omitting altogether several other heads of charges, say	-	82,306	-	82,306	-	say - 80,000 Incidentals - - - - - The items forming this amount are Moorings, Cables, Buoys, &c., and are added by the Admiralty to Cost of Ships after 1860-1, but are not added in 1860-1, or in any previous Accounts; it makes the total Amount to be added about 45 per cent., or the Total - - - - -	-	80,000 311,033
New Works, Improvements and Repairs, much of which is chargeable to Ships (<i>I omit</i>), amounts were; 1863-4, £. 417,383; 1862-3, £. 421,413; 1861-2, £. 451,645; 1860-1, £. 394,489 (<i>I omit</i>).	-	-	-	-	-	-	-	-
TOTAL Amounts to be added to Admiralty given } Cost of Ships, taking items as above - - - - - }	-	903,337 or 40 per cent.	-	958,106 or 45 per cent.	-	1,035,216 or 40 per cent.	-	1,032,561 or 45 per cent. 311,003
Admiralty given Cost of Ships, &c., to which above items have to be added.	-	2,263,036	-	2,165,114	-	2,502,538 <i>To be deducted Incidental -</i>	-	2,966,532 311,003

Frank P. Fellows.

E X T R A C T S.

r. Seely,
ansard, Vol. 177,
p. 1010 and 1011,
March 1865,

"It appeared to him," (Mr. Seely) "from a return he held in his hand, headed 'Navy Ships,' printed in July 1864, that the cost of repairing certain vessels, the names of which he had furnished to his honourable friend to enable him to investigate the matter, had clearly exceeded the sum for which they might have been bought, if new."

1012.

Mr. Seely then gave particulars of these vessels, which were the "Falcon," "Lyra," "Wasp," "Sharpshooter," "Salamander," and "Bulldog," and then proceeded to point out that in the figures he had quoted, though the repairs exceeded the cost of new vessels according to Admiralty figures, "in calculating the repairs many items had been omitted" by the Admiralty. "For example, the wages of the artificers were charged, but not their pensions, though it was well known that their wages were less, owing to their receipt of pensions. For this reason some allowance should be made for pensions, especially as in this year's estimates there was no less than 84,556 *l.* proposed to be voted for pensions to artificers."

1013.

"In the Navy Estimates there would also be found sums for the wages of foremen and others in dockyards, and *these* amounts were not included in the cost of shipbuilding and repairing; and, therefore, when they estimated the cost from these accounts, it should be borne in mind that they did not get the whole cost, but only a part. He had brought forward these points in order to press upon the Admiralty the necessity of giving true and faithful statements of what things did cost."

"Navy Ships" Accounts for 1860-1, stated (p. 3) at the foot of the Admiralty Balance Sheet for that year, "that under Votes 8, 9, and 10 there was a sum of 4,276,382 *l.* voted for shipbuilding purposes; and that in that year there was, under 15 heads, 4,017,780 *l.* spent in building and repairing Her Majesty's ships;" and at the foot of the account was appended this note:—

"It may be proper to remark that timber, copper, and other materials purchased in one year may not be expended for many years, and therefore the aggregate expenses incurred under the above 15 heads may in any one year greatly exceed or fall short of the aggregate amount of money voted under Votes 8, 9, 10; in other words, these two sums ought not to balance unless the value of materials in store at the commencement and at the end of the year happened to be the same, and this can never be ascertained without the costly and laborious process of taking stock."

"From these accounts the natural inference was,—

						£.
"That as	-	-	-	-	-	4,276,382 was voted,
and	-	-	-	-	-	4,017,780 expended,
a sum of	-	-	-	-	-	258,602 had been added to stock.

"But it so happened that the sums voted did not correspond with the sums *received* by the Admiralty."

1014.

							£.
The sum <i>received</i> was	-	-	-	-	-	-	4,424,243
and the sum expended was	-	-	-	-	-	-	4,017,780

so that there ought to have been, according to their own principle, 406,463 added to the stock in that one year (*i. e.* 1860-1).

He had examined the accounts for the next three years, and he found that there ought to have been added—

						£.
"To stock in the first year" (<i>i. e.</i> 1861-2)	-	-	-	-	-	802,321
"In the following year" (<i>i. e.</i> 1862-3)	-	-	-	-	-	672,222
"And in the third year" (<i>i. e.</i> 1863-4)	-	-	-	-	-	381,274

"Consequently in the four years" (1860 to 1863) "there ought to have been added to stock no less than — 2,262,281"

"His honourable friend (Mr. Childers) said that he was in error when he stated that, between 1860 and 1864, there was a sum of 2,250,000 *l.* unaccounted for, except upon the theory that it had been added to stock, because he had not deducted from the votes the value of coals which had been sent abroad, amounting to 1,500,000 *l.* He begged to say he had deducted these coals. If his honourable friend disputed the statement he made, he should be very glad to meet him, with the secretary he had employed, and go into the accounts;

accounts; and if any accountant from the Admiralty could show that he was wrong, he would apologise for having needlessly taken up the time of the House.

Mr. Seely,
Hansard, Vol. 177,
p. 1198, 6 March
1865.

	£.
Thus, in the year 1860-1 a vote was taken for - - - -	1,706,000
From which was deducted, for coals sent abroad - - -	312,644
And he only took credit for - - - -	£. 1,393,356

"There were many items besides those which he stated the other night which ought to be charged to the cost of building and repairing the ships of the navy. For instance, there was a charge in Vote 6, for salaries to foremen, &c., under the head of—

	£.
"Naval Yards at Home," amounting to - - - -	117,702
Deducting from that, for the salaries of surgeons, chaplains, boatswains, and schoolmasters - - - -	11,000
The remaining - - -	£. 106,702

ought to go to the debit of the account for building, repairing, and refitting ships.

There were other items, such as pensions to artificers, repairs, gas, &c., which he contended ought to be added to the cost of building, repairing and refitting Her Majesty's ships—

	£.
Amounting in the aggregate to - - - -	328,105 in 1860-1
" " to - - - -	381,286 in 1861-2
" " to - - - -	365,524 in 1862-3
" " and - - - -	288,196 in 1863-4

"Mr. Seely, referring to the Admiralty accounts, said it was quite evident from what had taken place that he and his honourable friend, the Member for Pontefract (Mr. Childers), could come to no agreement with respect to them. He therefore begged to repeat the offer which he had made on a former night, which was, that he would meet his honourable friend, and go carefully over the figures, and if it turned out that he was wrong, he would apologise to the House for the statements which he had made. He was, however, perfectly convinced that he had stated what was correct when he had said there were several millions of which on the face of the accounts no explanation was given."

pp. 1455-6, 9 March
1865.

"Mr. Seely said that his honourable friend, the Member for Pontefract (Mr. Childers) had agreed that the statements he made on a former occasion, instead of being debatable, were now to be admitted as facts. It would be recollected that his honourable friend had denied some of his statements, and he immediately offered to meet him at Somerset House to endeavour to ascertain which of them was correct.

Hansard, Vol. 178,
pp. 704-5, 3 April
1865.

"His honourable friend, with that desire to promote the public service which he had always shown in that House, and with that frankness of character which belonged to him, at once accepted the offer.

"A few weeks ago they met at Somerset House, and he would briefly state the results of the interview. On a former occasion he said that in the four years from 1860 to 1864 there was a sum not accounted for of - - - - £. 2,262,281

"He now found there were certain items not put into the Admiralty accounts for which they claimed credit, amounting to - - - 388,075

Leaving a balance not accounted for in these four years of } £. 1,870,000
(roughly) - - - - - }

"His honourable friend's solution of this difficulty was that a *considerable portion* of it had gone to stock in the purchase of Naval Stores. p. 705.

"He had then called his attention to the 1,500,000 *l.* unaccounted for between 1848 and 1858, but this was also said to have gone in the increase of Naval Stores.

"This made from 1848 to 1864 an amount of 3,370,000 *l.*, which was unaccounted for.

"His honourable friend said that the amount of Naval Stores at the present time was about - - - - £. 5,000,000

"And he now put it to him if he would assert his belief that in the year 1848 the amount of Naval Stores in all the Dockyards was only 1,630,000

"If he would not assert that, he must make to the House what other explanation he thought fit."

Mr. Seely,
Hansard, Vol. 178,
p. 705, 3 April
1865.
p. 706.

Mr. Seely then went into some figures to show the extreme improbability of stock being only 1,630,000 *l.* in 1848, and, after further remarks upon other points, stated, in reference to the items he then had specified as having been omitted from the Admiralty given cost of ships, thus: He had further stated that to the sum for "repairing and building ships in the four years he had mentioned, namely, from 1860 to 1864, there ought to be added 1,560,000 *l.* He would not trouble the House by going through the *details* by which he arrived at that conclusion, but he assumed that they were correct.

"They had been admitted to be correct by his honourable friend, with the exception of an item of 287,948 *l.* for pensions to artificers, which his honourable friend thought ought not to be included in the cost of building and repairing ships."

Mr. Seely then proceeded to show what effect the adding of these omitted items would have in increasing the given cost of Admiralty-built ships.

"... he would not weary the House by going through all his figures in detail, but hand them to his honourable friend if he desired it. He thought it of the last importance that the accounts of the Admiralty should be correct."

See sheet 11, pp.
24-25, *supra*,
quoted from
Hansard, Vol. 180,
p. 376, 16 June
1865.

"The Admiralty had omitted 1,000,000 *l.* a year from their calculation of the cost to the country of the building and repairing of ships. They had left out many items which would be charged in the calculations of a private firm. For instance, he found that in 1863-4 they had omitted 214,800 *l.* (which the Government said would be included for the future). The salaries of foremen, rent, cost of gas, &c., amounted to 214,800 *l.*

"The pensions to artificers, and to 'officers' (*i. e.* clerks), and 'foremen,' amounted—the former to 73,396 *l.*; the latter to, say, 60,000 *l.*

Besides these items, it was necessary, in comparing the expenditure of the Royal with that of the public yards, to set down something for interest upon plant and capital."

p. 377.

	£.
Now, the stock of stores was about - - - - -	5,000,000
The expenditure on shipbuilding for ships in progress of building up to March 1864, was - - - - -	1,117,713
On ships commenced as wooden and converted into iron-cased ships while building - - - - -	1,338,982
He assumed that in the seven Royal yards there had been expended on plant, workshops, and machinery, at least 2,000,000 <i>l.</i> (an honourable Member: More). Very likely; but he wished to state a moderate sum	2,000,000
According to this estimate the Total Capital and Plant was therefore £.	9,456,695

And the interest on this would be, at 5 per cent. - - - - -	472,835
"This would make" (adding items, viz. before mentioned) - - - - -	348,196
"a Total of - - - - -	821,031

"Which must be added to the cost of ships in 1863-4.

"Again, from the years 1855 to 1865-6, there was spent upon new works, machinery, &c. - - - - -	1,342,000
"This was entirely for the building and repairing of ships, and would represent an average per year of - - - - -	122,000

"In the same period 5,709,578 *l.* was spent on new works, buildings, machinery, and repairs, which would give an average of 519,052 *l.* a year."

p. 378.

As he had said, the whole sum, including interest on capital, which must be added to the cost of ships in 1863-4, was 821,031 *l.*

This was excluding every part of the enormous sum spent yearly on new works, machinery, &c., and also the sum of 166,881 *l.* for Admiralty offices (*i. e.* salaries, &c.), of which a sum of 82,306 *l.* ought to be charged to ships (*i. e.* yearly). Including Admiralty offices, 82,306 *l.*, amount would be 903,337 *l.*

Omitting these items, however, the House would see what would be the effect if the 821,000 *l.* were apportioned among the ships built and repaired by the Admiralty.

The total expenditure on vessels in 1863-4 was 2,848,397 *l.*, from which deduct cost of ships built by contract, 581,361 *l.*, leaving cost of ships built and repaired by the Admiralty, 2,263,036 *l.** To this must be added items not reckoned in Admiralty accounts, namely, 821,031 *l.*, so that (about) 40 per cent. has to be added to these accounts in 1863-4 for the purposes of comparison, "or adding for Admiralty office—

£.
903,337, or 40 per cent., in 1863-4,
958,106, or 45 per cent., in 1862-3,
1,035,216, or 40 per cent., in 1861-2,
1,038,561, or 35 per cent., in 1860-1;

so that the ships built at Her Majesty's dockyards, which the accounts gave as costing about

* This includes cost of engines.

about 2,000,000 *l.* each year, really cost about 3,000,000 *l.*, or 1,000,000 *l.* per year additional." Hansard, Vol. 180 p. 378, 16 June 1865.

Mr. Seely then entered into details to show that "six ships cost for repairs, &c. from 1859 to the present time (*i.e.* 1863-4, latest date up to which accounts were given), 212,859 *l.*;" "Or adding the per-centages" (as explained), 292,826 *l.*, and that they could have been bought new for 220,215 *l.* Mr. Seely afterwards proceeded to state that "the hulls of vessels built in the Royal yards from 1860 to 1864, cost, according to the published accounts, from 24 *l.* 10 *s.* 3 *d.* to 32 *l.* 15 *s.* 3 *d.* per ton; while in the private yards, in 1861" (the only year in which this information is given), "the hulls contracted for cost from 21 *l.* 19 *s.* to 23 *l.* 15 *s.* per ton. Then he might fairly assume that the Admiralty had not built those hulls, or executed those repairs, at a less cost, *according to its own published accounts*, than they could have been done for in private yards." It was clear, then, that the 821,000 *l.* "was utterly wasted, unless there was some special reason why the country should spend annually nearly a million more than would be spent in private yards in doing the same thing."

(*Mem.*—I give this quotation to show the basis Mr. Seely takes for calculating the cost of ships built and repaired by the Admiralty.—*F. P. Fellows.*)

"He had on a former occasion stated that items were omitted to the extent of about 40 per cent. which ought to be added to the cost of our ships. Practically, the Admiralty had admitted that he was correct, for about 35 per cent. had since been added in the latest published account, namely, those for 1864-5. The Admiralty, however, in this account said that 3 per cent. interest on the cost of production in labour, material, &c., should be charged "in the nature of a rent to cover interest on capital and depreciation of plant in the establishments where the works are carried on." This Admiralty interest of 3 per cent. in 1864-5 on "final productions" was 46,398 *l.* Now, he should show that this was nothing like the amount the real interest would come to. Let the House compare this with the principles observed in the commercial world. The private trader charged 5 per cent. on capital, 10 per cent. depreciation on machinery, and 5 per cent. on building. The army did the same."

Hansard, Vol. 184, p. 1506, 26 July 1866.

"The Admiralty accounts gave the value of the stores, April 1864,	£.	pp. 1506-7.
at - - - - -	5,029,126	
And the plant (take) at, say - - - - -	2,000,000	
Being a Total of - - - £.	7,029,126	

Interest on this sum at 3 per cent. would amount o - - - - -	£.
But the Admiralty only put down for interest and depreciation the sum of -	210,873
	46,398
Leaving a sum not charged of - - - - -	164,475
Now if the House thought fit to pay 40 per cent., or any other sum, more for the ships of the Royal Navy than they could be bought at private yards, let them at all events do it with their eyes open. Then nothing was charged in this estimate for pensions to artificers, but that really formed a part of the wages, because the Admiralty expected to get the work done at less wages in consequence of the pensions. This item of pensions amounted to - - - - -	74,607
So that these two items of interest and pensions gave, to be added to the cost of ships for 1864-5, the further sum of - - - £.	239,082

The 35 per cent. already added by the Admiralty to their accounts of cost should in fact be 50 per cent."

To show that this estimate was not overstated, "The honourable Member went over p. 1507. the accounts of the Navy, and made them out in the same form and manner as the Army Manufacturing Establishments for 1864-5, contending that the total charge for interest and depreciation of plant made out on this method, instead of 46,398 *l.*, should be 605,115 *l.*," or 558,727 *l.* additional must be added to Admiralty account of cost of ships, as made out for 1864-5.

For instance, the accounts made out as the Army Manufacturing Accounts for interest would be as follows:— pp. 1506-7.

Navy stores, 1st April 1864 - - - - -	£.
"Semi-manufactured Stores," as Army, ships building; spent on to 1 April 1864, say - - - - -	5,029,126
Returns to store and work in hand, 290,087 <i>l.</i> , say - - - - -	2,000,000
"Working capital," namely, one-fifth of annual expenditure, that is, 2,500,000 <i>l.</i> for 1864-5; one-fifth is - - - - -	200,000
"Land," say nil; plant, buildings, and machinery - - - - -	500,000
	2,000,000
Total - - - £.	9,729,126

		£.
r. Seely,	3½ per cent. on 9,729,126 l., is - - - - -	340,518
ansard, Vol. 184,	Depreciation, as Army, 5 per cent. on buildings, say 1,200,000 l. - - -	60,000
. 1506-7.	10 per cent. on machinery, say 800,000 l. - - - - -	80,000
	Total interest and depreciation, if reckoned as Army -	480,518
	Admiralty have reckoned only 46,398 l., that is "3 per cent. on final productions, viz., 1,546,600 l. - - - - -	46,398
	To be added for interest and depreciation - - -	434,120
	Superannuations, "Artificers" - - - - -	74,607
	Superannuations, clerks and foremen, 83,846, say - - - - -	50,000
	Or I add 239,082 l., and should add - - - - £.	558,727

The amount voted for new works, building machinery, and repairs, for the last 11 years' reached the enormous sum of 6,242,029 l., being a yearly average of 567,457 l.

"The honourable Member then adduced examples of the excess of the cost of Admiralty ships.

"The 'Frederick William,' of 74 guns, for instance, had cost 281,691 l., instead of 134,453 l., or more than double what she would have cost if *built at a private yard*.

"It might be said that the work of the royal dockyards was superior to that of private yards, but the Controller of the Navy, Admiral Robinson, at the launch of the 'Northumberland,' said, 'I bear most willing testimony to the excellence of the workmanship. I am not going beyond my province when I say that the skill of trained artificers, and the care and judgment of a first-rate manager, have produced a work that may be equalled, but cannot be surpassed.'

"The expenditure in repairs was *equally* excessive, for several ships had cost more for repairs than they would cost *new in private yards*. The 'Brisk' had cost 43,498 l. in repairs, and could be built for 49,621 l. The 'Cadmus' had cost in repairs 65,800 l., and would cost, new, 68,378 l."

— No. 6. —

COPY of LETTER from Mr. *Fellows* to the Controller of the Navy.

E.

Dear Sir,

26, Prince's Gate, 9 May 1867.

ansard, Vol. 184,
p. 1507-8, 26 July
1866.

IN reply to your remarks of 11th April upon the "Frederick William," the "Brisk," and the "Cadmus," I beg to say that Mr. Seely's statement was, that

	£.
"The 'Frederick William' had cost - - - - -	281,691
"Instead of - - - - -	134,453
"or more than double what she would have cost if built at a <i>private yard</i> ."	

Admiral R. S.
Robinson's remarks,
April 1867, p. 4,
pra.
ansard, Vol. 184,
p. 1506-7, 26 July
1866, quoted at
p. 29-30.

	£.
You now make the cost (adding for all years, items as added by the Admiralty in 1864-5) - - - - -	258,601
Adding to your figures the proper per centage for items, Mr. Seely specified as having been omitted in Admiralty Accounts in 1864-5, <i>i.e.</i> , 239,082 l. for pensions to artificers and interest on plant, being from 10 to 12½ per cent. on ships, say, 10 per cent. or - - - - -	25,860
Would make the total cost (method, No. 4) - - - - -	284,461
Instead of, as stated by Mr. Seely - - - - -	281,691
Or more than Mr. Seely stated, by - - - - £.	2,770

ansard, Vol. 182,
p. 333.

Mr. Seely took as a fair price for the cost, "if built at a *private yard*," 33 l. per ton, and 55 l. per horse, and he has repeatedly taken these data in his comments, as a fair price for vessels of war varying from 1,000 to 2,000 tons, and from 400 to 500 horse, such as the "Niger," "Gladiator," "Bulldog," &c., without objection.

The "Frederick William," of 3,241 tons and 500 horse power, at the above rates, "built at a *private yard*," would cost 134,453 l.

Mr.

Mr. Seely expressly stated that he compared the cost of the repairs of the "Brisk," &c., with what she "would cost new in *private yards*," and he then said,

Hansard, Vol. 184, pp. 1507-8, 26 July 1866.

See F. P. Fellows' statements, 2 and 5.

	£.
"The 'Brisk' had cost in repairs - - - - -	43,498
"And would cost new - - - - -	49,621"

Mr. Seely took the expenditure during the four years 1861-2 to 1864-5, as is shown in my statements.

	£.
You now give as the expenditure on the "Brisk" for two years 1863-4 and 1864-5, that is, reckoning the same items for 1863-4 as are reckoned in Navy Ships Accounts for 1864-5, or as my method, No. 3 - - - - -	38,052
Adding the two years' expenditure, 1861-2 and 1862-3, as given in Navy Ships Accounts, viz. - - - - -	3,050
And I add no per centage to this amount as you do to the amount for 1863-4	
And adding the 10 per cent. for items omitted, as specified by Mr. Seely, or - - - - -	4,110
Makes cost of repairs, &c., for four years, reckoned as specified by Mr. Seely (<i>i. e.</i> , as my method, No. 4) - - -	45,212
Instead of, as stated by Mr. Seely - - - - -	43,498
Or more than the sum named, by - - - - - £.	1,714

See Admiral R. S. Robinson's remarks, 11 April 1867, p. 1, *supra*.
See "Navy Ships" Account 1861-2, p. 16, and 1862-3, p. 14.

For items specified, see Hansard, Vol. 184, pp. 1506-7, quoted at p. 29, *supra*.

The "Brisk," of 1,087 tons and 250 horse, "would cost new in *private yards*," at 33*l.* per ton, and 55 *l.* per horse, 49,621 *l.*

Mr. Seely expressly stated that he compared the cost of the repairs, &c. of the "Cadmus" with what she "would cost new in *private yards*," and he then said—

For rate, see Hansard, Vol. 182, p. 333.

Hansard, Vol. 184, pp. 1507-8, 26 July 1866, see p. 30, *supra*.

See F. P. Fellows' statements, 3 and 6, pp. 10 and 13, *supra*.

	£.
The "Cadmus" had cost in repairs, &c. - - - - -	65,800
"And would cost new" - - - - -	68,378

Mr. Seely took the expenditure during the four years 1861-2 to 1864-5, as is shown in my statements.

	£.
You now give, as the expenditure on the "Cadmus" for two years 1863-4 and 1864-5, that is, reckoning the same items for 1863-4, as are reckoned in Navy Ships Accounts for 1864-5, or as my method, No. 3 - - - - -	59,800
Adding the two years' expenditure 1861-2, and 1862-3, as given in Navy Ships Accounts, viz. - - - - -	3,427
And I add no per centage to the amount as you do to the amount for 1863-4	
And adding the 10 per cent. for items omitted, as specified by Mr. Seely, or - - - - -	6,322
Makes cost of repairs, &c., for four years, reckoned as specified by Mr. Seely (<i>i. e.</i> , my method, No. 4) - - -	69,549
Instead of, as stated by Mr. Seely - - - - -	65,800
Or more than the sum named by Mr. Seely, by - £.	3,749

Admiral R. S. Robinson's remarks, 11 April 1867, p. 2, *supra*.
See Navy Ships Accounts, 1861-2, p. 17; 1862-3, p. 14.

For items specified, see Hansard, Vol. 184, pp. 1506-7, quoted at p. 29, *supra*.

The "Cadmus," of 1,466 tons, and 400 horse, would cost "new in *private yards*," at 33 *l.* per ton, and 50 *l.* per horse, and these were the data taken 68,378 *l.*

For rate, see Hansard, Vol. 182, p. 333.

The word "repairs" of "Frederick William" in a newspaper report was a printer's error; it should have been "building." Mr. Seely wrote and corrected this error on the following day.

Mr. Seely was not aware, when he instanced the "Frederick William" (which was only one of several examples of excessive cost in building ships he had on his paper), that she was a converted vessel, nor that she was commenced in 1841, and was from 20 to 25 years in converting and building.

See p. 30, *supra*.

It will be seen that Mr. Seely, in all cases, compared cost of building or repairing in Her Majesty's yards with what he considered, and stated would be, the cost of similar new vessels if "built in *private* yards." He in no instance compared cost of "repairs, &c.," in Her Majesty's yards, with what these or similar vessels had or would cost if built new in Her Majesty's yards.

Mr. Seely has seen no reason to alter his data of 33 *l.* per ton, and 55 *l.* per horse, as a fair price for the "Frederick William," "if built at a *private* yard," and he is rather confirmed in this opinion by Admiralty figures, as the following statement will show:—

See Navy Ships
Accounts for 1861-2,
p. 81.

The Admiralty state that they paid in 1861-2 for vessels built in private yards, "of wood"—

Guns. Tons. Horse.			Per Ton.		
			£.	s.	d.
Of 2	- 232	- 40 and 60, "Fenella," "Garnet," "Porpoise,"	22	12	6
		"Hunter" - - - -			
Of 1	- 301	- 80 - - "Jaseur," "Jasper" - - -	21	19	-
Average price per ton (say)			22	10	-

Mr. Seely is told that these vessels are worth about as much per ton as screw corvettes of 18 guns and 456 tons; and that the vessels *bought* by the Admiralty include fittings, but not equipment.

A steam two-decked, 80 gun, 2,279 ton ship for the hull, *if built in Her Majesty's yards*, would cost per ton more than corvettes as above, according to the work of Mr. Edye, C.B., late of the Admiralty, and therefore more than the ships named above, per ton 3 *l.* 3 *s.* 8 *d.* - - - - -

3 3 8

A two-decked, 74 gun, 3,241 ton ship, as the "Frederick William," should cost *less* per ton than the 2,279 ton ship, for a two-decked, 74 gun, 1,741 ton ship, Mr. Edye gives as 4 *l.* 17 *s.* 11 *d.* per ton more than a two-decked, 80 gun, 2,279 ton ship (that is for the hulls, if built in Her Majesty's yards)

However, say that the "Frederick William," of 3,241 tons, would, including the fittings (as in vessels bought), cost this 3 *l.* 3 *s.* 8 *d.* per ton more than an 18 gun, 456 ton, corvette, including the fitting (as in vessels bought).

This would give, as the price per ton of the "Frederick William," including the fittings (as in ships bought), but exclusive of equipment - - - - -

25 13 8

Which would leave about 23,000 *l.* for the equipment, or per ton - - - - -

7 6 4

Mr. Seely is informed that 20,000 *l.* is sufficient for the equipment.

This gives total price per ton for "Frederick William," completely built, fitted, and equipped, "if built at a *private* yard"

33 - -

Reckoning total cost 134,453 *l.*, as Mr. Seely.

With

With reference to your remark that "probably there are no private yards in the kingdom which have the materials or appliances to build such a ship at all for any price," Mr. Seely applied to Messrs. Laird Brothers to know if they could build such a ship as the "Frederick William," and they reply "that there would be no difficulty in their undertaking to build a wooden vessel of 3,250 tons, were sufficient time allowed to secure good oak timber for the framework, all other materials they would have no difficulty in procuring;" and they say, "Laird Brothers, as to appliances for building such vessels, have every necessary means at their disposal."

Mr. Seely has reason to believe that there are other firms in the kingdom who could build vessels similar to the "Frederick William."

Mr. Seely would be glad, if you have any objections to make to any of the statements herein contained, if you would state what they are at your earliest convenience.

I am, &c.
(signed) *Frank P. Fellows.*

— No. 7. —

F.

COPY of CONTROLLER'S SUBMISSION to the BOARD of ADMIRALTY,
dated 16 May 1867.

I HAVE been in communication, by the late First Lord of the Admiralty's desire, with Mr. Seely on the subject of verifying the figures which were quoted by him as to the cost of certain ships.

Mr. Seely asked me to see and discuss the matter with his secretary, Mr. Fellows, and I produced the statement taken from the Accountant General's books, on which this department relies for the accuracy of the figures quoted by Sir John Pakington; this I gave to Mr. Fellows, and he gave me in return the data on which Mr. Seely relied for the accuracy of his quotations. I may here observe that any discussion as to the accuracy of the figures produced by two persons is absolutely useless, unless the *same things* are compared, and that necessarily, unless a common theory be agreed upon as a basis on which all charges shall be founded, it will be quite impossible to come to any agreement as to the accuracy or otherwise of those charges.

The Expense Accounts, laid before Parliament on the authority of the Board of Admiralty, do not profess to do more than indicate in great detail the cash expenditure on the productions or out-turn of the several dockyards, with such additions as can fairly be added for such incidental charges as relate to those productions; they are not intended to compare, as a commercial transaction, with the operations of a private establishment, for no such comparison could really hold good.

The commercial establishment exists to turn out its productions with as much profit as it can.

But the national establishment is constituted on entirely different ground; it does not exist for the purpose of turning out work as cheaply as possible, or for obtaining profit by its operation; it exists for national purposes.

It forms a basis for our national defence; it is in all respects an investment like an insurance against war and its catastrophes. It keeps up trained workmen, buildings, stores, machinery, capable of great expansion in the event of war, and working much below its power in peace time.

It is, therefore, compared commercially with a private firm, of an unremunerative character; and a statement of all the charges that a private firm would have to take into account, before it could ascertain whether its work was profitable or not, however necessary and proper for that purpose it may be, does not appear to the Admiralty to apply to national establishments, the reason for whose existence is fundamentally different.

This is no reason for not conducting the national establishments with all possible

possible economy, and the publication and improvement of these accounts have no doubt contributed towards this result.

The difficulty, therefore, of arriving at the same conclusion from premises so essentially different has been insurmountable.

That the subject is not a simple one, in the sense that one view is inevitably right and the other inevitably wrong, will appear by a careful investigation of the data with which Mr. Fellows was good enough to supply me.

The question presents itself principally in the light of the per-centages to be added to the ascertained cost of labour and materials expended on any work or production of the dockyards; and Mr. Fellows, in the tables by which he calculated those per-centages, showed four different methods by which he arrived at what should be added to the Admiralty figures. Now, as these methods do not give the same results, there is some ground for not implicitly adopting Mr. Seely's views as to the amount of per-centage which should properly be added to the Accountant General's figures.

But, in addition to this general difficulty of coming to an understanding as to the figures which should represent the cost of such works performed in the dockyards as are included in the Expense Accounts, there is another subject of disagreement which must briefly be adverted to.

In three especial cases quoted by Mr. Seely as proofs of extravagance on the part of the Admiralty, the "Frederick William," the "Brisk," and the "Cadmus," he seeks to prove the imputation by comparing the cost of the "Frederick William," arranged as he thinks it ought to be, with what a similar ship, built in a private yard, would have cost; and he makes out a very astonishing difference. Now, the comparison he has made, apart from any difference of opinion as to what the figures ought to be, is not between the same things; that is, it is not between the cost of building the "Frederick William" in Her Majesty's yard, and building her in a private yard, for the amount which Mr. Seely says the "Frederick William" cost in building is not the cost of building only, but the cost of the ship for building, converting, maintenance and repairs in reserve and in commission, including sea stores, and extends over a period of 24 years.

If Mr. Seely could ascertain what a ship in all respects similar to the "Frederick William," under precisely the circumstances recited above, would have cost in a private yard, the inference he seeks to draw might or might not be just. As he has stated the case, it is simply impossible to argue upon it at all.

That a ship of 3,241 tons, and of 500 horse-power, might be bought for 134,453 *l.* may be a fact, but that a ship built, fitted, equipped, and stored as the "Frederick William" was, in all the details of her construction, both as to workmanship and materials, could be obtained for that sum, is entirely inconsistent with all our knowledge and experience of the subject, founded not only upon what passes in our own establishments, but on all the extensive dealings we have had with private firms, and with the examination of their books and accounts, which in some instances at their request we have been obliged to undertake, and the very quotations Mr. Seely makes from Messrs. Laird Brothers confirm my opinion. It is impossible for the Admiralty to admit that either 281,691 *l.*, as Mr. Seely asserts, was the cost of building the "Frederick William," or that in a private yard the expenditure of 134,453 *l.* would have built, equipped, stored, and sent to sea, a ship in all respects similar to the "Frederick William."

This in fact is the comparison Mr. Seely drew, and it is one the justice of which is in no way admissible. Here too it must be remarked that Mr. Seely arrives at the figures 281,691 *l.* by adding per-centages to the recorded charges against the ship for 24 years, which per-centages the Admiralty do not admit to be correct.

Mr. Fellows candidly admits that Mr. Seely was not aware of the exact state of the case as regards the "Frederick William" when he made the statement he did.

The cases of the "Brisk" and "Cadmus" are very similar to the "Frederick William."

Mr. Seely obtains his figures of the cost of the repairs of the "Brisk" by adding to the cost shown in the Parliamentary Returns for the portion of two years

years when the "Brisk" was repairing, *first*, the additional per-centage which he is convinced is right and proper, but to which the Admiralty demur; and, *secondly*, the expenses of two years' wear and tear while the ship was in *commission on foreign service*. Of course the amount arrived at in this way, as the cost of the repairs of the "Brisk," must differ essentially from the figures quoted by Sir John Pakington; and as in the case of the "Frederick William," as like things are not compared with like, no agreement can possibly be come to.

It is quite contrary to our experience that ships precisely like the "Brisk" and "Cadmus," if built, fitted, and equipped, stored for sea, with engines and spare gear complete, and constructed of sound, seasoned materials, and with proper workmanship, could be paid for now at the prices Mr. Seely has named.

Mr. Fellows has observed that Sir John Pakington stated, in reply to Mr. Seely, the cost at which such ships could be built in the *Government yards*, and that Mr. Seely's argument was founded on the cost at which such ships could be procured in private yards, and consequently that his argument was not fairly met.

The figures furnished to Sir John Pakington, and quoted by him, were the amounts which such ships would cost new in the dockyards at the present time, and that being a statement of facts known and to be relied on, appeared the most satisfactory one to make; but in my communication to Mr. Fellows, I overlooked the fact, that in the case of the "Brisk" and "Cadmus" he had spoken of the cost of these ships *new in private yards*.

Mr. Fellows has very fairly stated the grounds on which Mr. Seely has come to the conclusion that the "Frederick William," "Brisk," and "Cadmus," could have been built new in private yards for the figures he has quoted.

The Admiralty cannot admit that any analogy exists between the price paid per ton for small vessels, some with machinery, others without, and the price to be paid per ton for ships of the largest and heaviest scantling, constructed to bear the strain of the heaviest artillery and of powerful engines.

Mr. Fellows has taken for granted that the work of Mr. Edye, formerly employed at the Admiralty, and a most able and valuable public servant, may implicitly be relied on as indicating the cost of ships per ton. Now, when Mr. Edye was connected with the surveyor's department, the system of accounts was, as Mr. Seely is thoroughly persuaded, and as the Royal Commission reported in 1861, too imperfect to admit of accurate data for ascertaining the true cost of ships.

Moreover, since the introduction of screw engines universally into ships of war, of which Mr. Edye saw but little, the cost of construction has been immensely increased in various ways, and the figures relied upon by Mr. Seely, as guides to his calculations, apply, I observe, to ships without engines.

But not only has the cost of strengthening and constructing ships of war increased since Mr. Edye's acquaintance with the surveyor's department terminated, but the fittings of men-of-war are altogether different, and far more expensive than they were in his time. The ventilating, pumping, and fire service arrangements, the accommodation provided for officers and men, the baths, washing, and hospital arrangements for the crew, the gun and armament fittings, have all added greatly to the cost of completing and equipping ships of war.

The experience of the Admiralty in their dealings with private builders has taught them that private firms make very erroneous estimates of the cost of these works, and greatly underrate the expensive nature of them until they actually take them in hand.

In most cases, of late years, when the private builder has construed his engagements with the Admiralty to complete the ship, as in *Her Majesty's service*, with any degree of liberality, he has complained bitterly of the loss he has incurred by doing so. In other cases never-ending disputes have occurred, resulting in the work being finally done in one of Her Majesty's yards.

It has happened that private firms engaged on Government work have been compelled to go to Her Majesty's yards for materials, none of the required quality being obtainable in the market.

It cannot therefore be admitted that the figures given by Mr. Seely as the sums that would be paid for the "Brisk" and "Cadmus," if purchased as com-

plete from a private firm as they are turned out from the dockyards (bearing in mind that all the materials of every kind, and all the workmanship of every kind, is to be as good in the one case as in the other), are consistent with our experience, or with the fact. It is however useless to pursue the subject further.

Mr. Seely's theory of recording dockyard expenses differs from that adopted by the Admiralty.

It follows of course that calculations based on two different theories cannot produce the same result.

And with reference to the cost of ships in private yards, the difficulty of comparing things which though nominally, are yet essentially unlike, prevents any more satisfactory conclusion from being arrived at.

I have undertaken this task by the desire of the late First Lord of the Admiralty, and as Mr. Seely has asked for a reply to the observations he has made on the statement I furnished him, I request their Lordships will inform me whether they approve of this memorandum, and will permit a copy to be sent to Mr. Seely.

I enclose Mr. Seely's observations, which I request may be returned to me.

(signed) *Rob. Spencer Robinson.*

G.

— No. 8. —

COPY of CONTROLLER'S LETTER to Mr. *Seely*, of 29 June 1867.

Sir,

Admiralty, S. W., 29 June 1867.

See p. 33, supra.

THE enclosed paper having been laid before their Lordships, I have received their directions to communicate it to you as a final reply to the various papers and observations which, through your secretary, have been exchanged between us.

I have, &c.

(signed) *Rob. Spencer Robinson.*

Charles Seely, Esq., M.P.
26 Prince's Gate, W.

H.

— No. 9. —

COPY of LETTER from Mr. *Seely* to the Controller of the Navy.

Sir,

26, Princes Gate, W., 8 July 1867.

I BEG to acknowledge your letter of the 29th June, and a copy of a paper which was sent to the Lords of the Admiralty on the 16th May last, which appears to have received their Lordships' sanction.

In that paper you state "that any discussion as to the accuracy of the figures produced by two persons is absolutely useless, unless the same things are compared, and that necessarily, unless a common theory be agreed upon as a basis on which all charges shall be founded, it will be quite impossible to come to any agreement as to the accuracy or otherwise of those charges."

The question is not respecting "the accuracy or otherwise of those charges," but whether the statements I made respecting the cost of the "Frederick William," the "Brisk," and the "Cadmus" are accurate?

Sir John Pakington stated his "sincere belief" that my "figures were entirely erroneous," and "that it would be absolutely impossible for me to verify them."

The question simply is respecting the "verification" of my "figures." I stated that the total cost of the "Frederick William" was 281,691*l.*, including certain items which I specified.

The question is simply whether, calculating such items, the cost was less than 281,691*l.*?

If so, will you state how much less?

Sir

Sir John Pakington states that he "could not find that she cost more than 197,000*l*." Times, 20 February 1867.

You give the total cost, reckoned as the Admiralty reckon, in 1864-65, at - - - - -	£.
Pensions to artificers (which are to be added in future Admiralty accounts) and difference of interest, as specified by me, together 239,082 <i>l</i> , would add 10 per cent., or - - - - -	258,601
Making Total Cost - - - - - £.	25,860
Or more than I stated by - - - - -	£. 284,461
The question is, whether this is so or not?	£. 2,770

Admiral Robinson's remarks, exchanged 11 April 1867, p. 6.

See Mr. Fellows' statements and letter of 9 May, p. 1, and Hansard, Vol. 178, pp. 1506-7.

Items are—	
3 per cent. on stock of store, 5,029,126 <i>l</i> , and plant, 2,000,000 <i>l</i> , is - - -	£. 210,87
Pensions, artificers - - -	74,60
TOTAL - - -	£. 285,48
Deducting interest charged -	46,38
Leaves to be charged -	£. 239,08

See p. 29, *supra*.

I stated that the "Brisk" (taking the expenditure of four years) had cost in repairs, &c., 43,498*l*, *including* certain items which I specified. Hansard, Vol. 178, p. 1508.

The question simply is whether, *including* these items, the cost was less than 43,498*l*? pp. 1506-7.

If so, how much less?

You object to my having included 3,050*l*. and per-centage thereon expended in 1861-62 and 1862-63, as not being strictly "repairs, &c."

Reserving my opinion upon this, still, to avoid minor points of dispute, I am willing for the present purpose to throw this out and to adopt your figures.

You give as the cost of the "repairs, &c." of the "Brisk" during 1863-64 and 1864-65 - - -	£.
Pensions to artificers and difference of interest, as specified by me (239,082 <i>l</i>), would add about 10 per cent. or	38,052
	3,805

Admiral Robinson's remarks, exchanged 11 April 1867, p. 14. See Hansard, Vol. 178, pp. 1506-7, and Mr. Fellows' statements and letter of 9 May.

Making Total Cost, Repairs (two years) - - £. 41,857

Differing (taking two years) from my statement by £. - 1,641

The question is, whether this is so or not?

I stated that the "Cadmus" (taking the expenditure for four years) had cost in repairs, &c., 65,800*l*, *including certain items which I specified*. Hansard, Vol. 178, p. 1508.

The question simply is, whether, *including these items*, the cost was less than 65,800*l*. See Hansard, Vol. 178, pp. 1506-7. See p. 30, *supra*.

And if so, how much less?

You object to my having included 3,427*l*. and per-centage thereon, expended in 1861-62 and 1862-63, as not being strictly repairs, &c.

Reserving my opinion upon this, still, to avoid minor points of dispute, I am willing for the present purpose to throw this out and to adopt your figures.

You give the cost of the "repairs, &c." of the "Cadmus" in 1863-4 and 1864-5—

Two years, at - - - - -	£.
Pensions to artificers and difference of interest specified by me (239,082 <i>l</i>), would add about 10 per cent., or,	59,800
Making Total cost of repairs for two years	£. 5,980
	£. 65,780

Admiral Robinson's remarks, exchanged with Mr. Fellows, 11 April 1867, p. 18. Hansard, vol. 178, pp. 1506-7. Mr. Fellows' statement, 11 April 1867. Mr. Fellows' letter, 9 May 1867.

Differing (taking two years) from my original statement by £. 20.

The question is, whether this is so or not?

From this it appears, taking the total of the three instances, and adopting your figures as a basis, that I understated my case to the extent of 1,209*l*.

With reference to your remarks as to the price at which such vessels as the "Frederick William" could be built in a private yard, I have simply to observe that I took the price per ton the Admiralty gave as having been paid by them for vessels bought a *few years since* of a certain class (and you do not appear to object to this price); and I only referred to Mr. Edye's work to ascertain the difference per ton in price between vessels of this class and vessels like the "Frederick William."

This difference is only 3 *l.* 3 *s.* 8 *d.* per ton.

You do not object that *this* is insufficient, except by generally impugning the accuracy of Mr. Edye's work and Admiralty accounts from which he drew his conclusions.

See Mr. Fellows' letter, 9 May 1867, see p. 32, *supra*.

I allowed 23,000 *l.* for the full equipment and sea stores of the "Frederick William," which I believe to be amply sufficient, and the sufficiency of which sum for this purpose you do not appear to dispute.

The only question, it appears to me, is, whether the extra sum of 3 *l.* 3 *s.* 8 *d.* per ton obtained by reference to Mr. Edye's work is sufficient.

Any possible error, however, in this cannot materially affect the result.

I have had no definite reply to my request that my statement should be investigated, that the Admiralty had since 1841 paid about 170,000 *l.* more for anchors than the market price.

This is a grave charge to bring against a public department, that they have uselessly expended about 170,000 *l.* more of the public money than was necessary, and I think they should clear themselves from the imputation if they can.

I may observe, that if there is any other statement I have made in the House to which you take exception, I shall be exceedingly glad to have it investigated. On a careful revision of the whole case it appears to me that you have practically admitted that so far from having greatly overstated my case, as was alleged by Sir John Pakington, I have, on the whole, understated it to the extent of 1,209 *l.*, as the following summary will show:—

	I stated Cost to be	This Letter shows Cost to be
	£.	£.
Total cost building, &c. "Frederick William" -	281,691	284,461
Repairs, &c. of "Brisk" - - - -	(4 years) 43,498	(2 years) 41,857
Repairs, &c. of "Cadmus" - - - -	(4 years) 65,800	(2 years) 65,780
TOTAL - - - £.	390,889	392,098

If, however, you do not concur in this, then I am certainly entitled to ask for a specific statement of where my figures are wrong; for I cannot think it fair that my figures should be disputed in the House by the First Lord of the Admiralty, and that when an investigation is agreed upon to inquire *into* their accuracy or otherwise, and when a conclusion can readily be arrived at, that such investigation should close without either an admission that I was right, or a specific statement of where I was wrong.

- Admiral R. S. Robinson,
Controller of the Navy.

I have, &c.
(signed) Charles Seely.

— No. 10. —

I.

COPY of CONTROLLER'S SUBMISSION, of 10 July 1867, to the BOARD of ADMIRALTY.

Admiralty, 10 July 1867.

I HAVE received the enclosed from Mr. Seely, and I submit it for their Lordships' consideration.

There is nothing in it that has not been fully noticed and explained in my submission to the Board, dated the 16th of May last.

Mr. Seely comprises, in what he calls the cost of a ship, items which the Admiralty omit. He includes in the word building (as applied to the "Frederick William") conversion, maintenance, wear and tear, and repairs, which the Admiralty omit.

He includes in the word repairs, as applied to the "Brisk" and "Cadmus," maintenance in commission, and wear and tear, which the Admiralty do not admit to be repairs. Differing, then, in the items that compose cost, and in the meaning of the words building and repairs, as applied to these ships, how can Mr. Seely's figures, and those quoted by Sir John Pakington, do anything but differ?

As all this has been fully shown to their Lordships by my paper, dated 16th May last, I will not again go over the grounds, and submit whether Mr. Seely should not be told that, for the reasons given, it appears impossible to come to any understanding.

There is a question about the cost of anchors which belongs to the Store-keeper General's Department, and has not been referred to me at all. It is for their Lordships to decide whether they will give Mr. Seely any answer on the subject.

(signed) *Rob. Spencer Robinson.*

— No. 11. —

K.

COPY of CONTROLLER'S LETTER of 10 July 1867, to Mr. Seely.

Dear Mr. Seely,

Admiralty, 10 July 1867.

THE whole of the questions, with one exception, put to me in your letter of the 8th July, have been answered, to the best of my ability, in the Paper sent to the Admiralty on the 16th May last, and communicated to you by the Board's desire.

My opinion is unchanged that the difference between your figures and those given by Sir John Pakington is owing to your not comparing the same things under the same names; this difference must always exist until you and the Admiralty include the same items in the word *cost*, and agree on the precise meaning of the words *building and repairs*.

You differ very widely in your respective definitions of these terms, as I have shown in my letter just referred to, and your figures and Sir John Pakington's must therefore vary as much as your definitions differ.

I cannot see how any other result can be arrived at, or that there would be any use in attempting to carry on a controversy when the disputants are not agreed upon the meaning of the words they use.

I should, however, much regret to leave you under the impression that your case had not been fairly met, and will therefore say, that in my opinion, if your definitions (as set forth in Mr. Fellows' correspondence with me) of the words *cost, building, and repairs*, as you have applied them to the cases of the "Frederick William," "Brisk," and "Cadmus," were accepted by the Admiralty as the correct and proper meaning of the terms, the figures you have quoted are in that sense correct, but as this is exactly the question in dispute, I do not see how we are to get any nearer to a definite understanding.

I therefore beg of you to believe that it is from no want either of respect or courtesy to yourself that I must decline to follow you again through the statements contained in your letter of the 8th instant. I could only repeat what I said on the 16th of May, and in doing so, should, I fear, weary you without convincing you.

The one point referred to in your letter of the 8th instant, to which I had not adverted in my Paper of the 16th of May, relates to the prices paid for anchors. It has never been referred to me; it relates to the Storekeeper General's Department, and was, I understood, satisfactorily replied to by him.

Allow me to assure you that, though I have been unable to admit some of the positions you have laid down, or to draw conclusions you have drawn from certain facts, still less to accept the data on which you calculate the cost of new ships of war built in private yards, I always read any statements you make respecting the administration of the Navy, not only with great attention, but with an earnest desire to make use of them for the public service, either by correcting errors, or adopting such improvements as lie within my power.

I have not written this explanation to you in a more formal manner, because the task, which I undertook at Sir John Pakington's request, was fulfilled on the 16th of May, and my commission is at an end.

You will therefore understand that in this letter I do not engage any person's responsibility except my own.

Believe me, &c.

C. Seely, Esq., M.P.,
26, Prince's Gate, W.

(signed) *Rob. Spencer Robinson.*



COPY of CORRESPONDENCE between the Admiralty and Mr. *Seely* relating to the Cost of Building the "FREDERICK WILLIAM," and the Cost of Repairing the "BRISK" and the "CADMUS."

(*Mr. Seely.*)

*Ordered, by The House of Commons, to be Printed,
13 August 1867.*

604

SHIP "NORTHUMBERLAND."

RETURN to an Order of the Honourable The House of Commons,
dated 22 March 1867 ;—for,

RETURN "giving the Date of the Original CONTRACT, and the PRICE to be paid Messrs. *Mare & Co.*, under the Terms of such Contract, for Her Majesty's Ship 'NORTHUMBERLAND : ' "

"COPY of CORRESPONDENCE showing the circumstances under which the CONTRACT was transferred from Messrs. *Mare & Co.*, and subsequently taken by the Millwall Company, and the additional Price agreed to be paid to the Millwall Company before proceeding with the Construction of the Ship : "

"And, RETURN of all MONEYS paid for, or on account of, the ' NORTHUMBERLAND ' up to the present Date, and the further Sum (if any) ordered to be paid, or still owing, on account of such Vessel."

Admiralty, }
4 June 1867.]

JOHN HENRY BRIGGS,
Chief Clerk.

(Mr. Seely.)

Ordered, by The House of Commons, to be Printed,
6 June 1867.

RETURN giving the Date of the Original CONTRACT, and the PRICE to be paid Messrs. *Mare & Co.*, under the Terms of such Contract, for Her Majesty's Ship "NORTHUMBERLAND:"—Copy of CORRESPONDENCE showing the circumstances under which the CONTRACT was transferred from Messrs. *Mare & Co.*, and subsequently taken by the Millwall Company, and the additional Price agreed to be paid to the Millwall Company before proceeding with the Construction of the Ship :—And, Return of all MONEYS paid for, or on account of, the "NORTHUMBERLAND" up to the present Date, and the further Sum (if any) ordered to be paid, or still owing, on account of such Vessel.

"NORTHUMBERLAND."

Date of the original Contract with Messrs. <i>Mare & Co.</i> for the construction of the Ship	} 10 May 1862. (The date of their Lordships' Order accepting Messrs. <i>Mare & Co.</i> 's Tender was 2 September 1861.)
---	---

Price to be paid to Messrs. <i>Mare & Co.</i> under the terms of the Contract above mentioned	} £. 44. 12s. per ton on 6,620 $\frac{3}{4}$ tons.
---	--

Admiralty, 23 May 1867.

(D. C. 3425/63.)

Messrs. *Mare & Co.* to the Secretary to the Admiralty.

Millwall Iron Works, E., and
84, King William-street, London Bridge, E. C.,
London, 30 December 1862.

Sir,

WE have the pleasure to state for the information of their Lordships, that for the purpose of lending greater efficiency to our works at Millwall, and to secure such ample resources as the extended character of our business demanded, we have formed a company (under the Acts for limiting liability) to whom the entire of our establishment will be transferred, on the 1st of January next, and we shall feel obliged if their Lordships will direct that their future communications shall be addressed to the Millwall Iron Works and Shipbuilding Company, Limited, Millwall.

Mr. George Harrison, hitherto the managing partner of Messrs. Peto, Brassey & Betts, Canada Works at Birkenhead, has been appointed resident managing director, and will receive and give his best attention to such communications as their Lordships may favour him with.

We also trust their Lordships will not object to allow the contract for the "Northumberland" to be transferred from the name of our Mr. C. J. Mare to the new company, who will be prepared to accept and complete it upon the terms and conditions entered into with Mr. Mare.

W. G. Romaine, Esq.,
Secretary to the Admiralty.

We have, &c.
(signed) *C. J. Mare & Co.*

The Millwall Iron Works and Shipbuilding Company to the Secretary to the Admiralty.

The Millwall Iron Works and Shipbuilding Company, Limited,
City Office, 84, King William-street, London Bridge, E. C.,
London, 30 March 1863.

Sir,

I AM desired, on behalf of this Company, to request that you will so far favour them as to bring before the attention of my Lords the price at which Messrs. C. J. Mare & Co. accepted the contract for building the iron-clad frigate "Northumberland," in the hope that their Lordships will see the justice of re-considering the question, and giving to this Company at least the same sum for this ship as that given for the "Agincourt" and "Minotaur."

The proprietors of this Company having provided themselves with ample means to carry out to the fullest extent the conditions of the contract they are now about to enter into with my Lords, feel that it is not unreasonable, if the work they undertake to execute is to be equal in all respects to that of the other contractors, that they should receive from Her Majesty's Government the same remuneration as that given to others; and as my Lords have been so willing to meet the views of the managing directors of the Company as to modify the terms of the original contract as to the period for completing the vessel, I am to express the hope, on the part of the Company, that my Lords will not overlook the great injustice which would be done if the Company was asked to undertake a contract upon terms which would render it impossible to carry out the work without entailing a very serious loss to the Company. I am further to state, for the information of my Lords, that the proprietors of this Company, having purchased from Messrs. Mare their establishment only, are not in any degree bound to accept the contracts which the late proprietors had in hand; but as they felt sensible that it was of the utmost importance to the public service that the contract now referred to should be carried out efficiently, they resolved to proceed with it, in the full reliance that my Lords would not hesitate to receive and give their attention to any fair representation which might be offered on the part of the Company either as to conditions or price.

I am now, therefore, to request that the managing director of our works, Mr. George Harrison, may be permitted an interview with my Lords, or their representative, to explain how impossible it is to complete the ship for the sum named without loss; and I am also to assure you, for the information of their Lordships, that there is not only every disposition on the part of this Company to meet and fully carry into effect their Lordships' wishes, but the capabilities of the Company in point of financial resources and in all other respects are fully equal to any engagements they undertake.

I have, &c.

(signed) *J. Lyster O'Beirne,*
Managing Director.

The Secretary to the Admiralty to the Millwall Iron Works and Shipbuilding Company.

Gentlemen,

Admiralty, 15 April 1863.

I HAVE received and laid before my Lords Commissioners of the Admiralty your letter of the 30th of last month, in regard to the terms on which you will undertake to complete the "Northumberland," and I am commanded by their Lordships to acquaint you that they are prepared to consent to a modification of the draft contract, so far as to raise the price per ton from 44 *l.* 12 *s.* to 48 *l.* 10 *s.*, the rate at which the "Minotaur" is being constructed; which increase will make the cost of the "Northumberland" 321,117 *l.*, instead of 295,295 *l.*

I am, &c.

The Millwall Iron Works Company,
Millwall.

(signed) *C. Paget.*

The Millwall Iron Works and Shipbuilding Company to the Secretary to the Admiralty.

The Millwall Iron Works and Shipbuilding Company, Limited,
City Office, 84, King William-street, London Bridge, E.C.,

Sir,

London, 23 April 1863.

I HAVE the honour, on behalf of this Company, to acknowledge and thank you for your communication of the 15th instant, in which my Lords intimate their consent to modify the contract for the iron-clad frigate "Northumberland," so far as to raise the price per ton from 44 *l.* 12 *s.* to 48 *l.* 10 *s.*, the rate at which the "Minotaur" is being constructed.

I am to assure my Lords that every effort shall be used to carry out the work to their satisfaction.

I am, &c.

To the Secretary of the Admiralty,
Whitehall, S.W.

(signed) *J. Lyster O'Beirne*,
Managing Director.

RETURN of all MONEYS paid for, or on account of, the "NORTHUMBERLAND," up to the present Date, and the further Sum (if any) ordered to be paid, or still owing, on account of such Vessel.

Description of Payment.				Amount.		
				£.	s.	d.
1. Instalments under Contract	-	-	-	-	-	-
2. Extras	-	-	-	-	-	-
3. Stores and Labour supplied by the Dockyards in assisting at the Launch	-	-	-	18,666	16	10
Deduct,—						
Contribution by the Millwall Company in aid of the above Charges, paid into the Exchequer; a Vote having been taken for the Gross Expenses in the Navy Estimates				8,000	-	-
Net Charge to the Country						
4. Incidental Expenses	-	-	-			
5. Masts	-	-	-			
6. Engines	-	-	-			
				£.		
Amount still owing :						
Balance on engines, reserved until they are satisfactorily tried				-	-	-

Admiralty, 22 May 1867.

J. Beeby,
Accountant General of the Navy.

COPY of AGREEMENT between the Millwall Iron Works and Shipbuilding Company and the Lords of the Admiralty, as to the "Northumberland."

THIS INDENTURE, made the 1st day of June 1863, between Charles John Mare, of Millwall Ironworks, in the county of Middlesex, Iron Shipbuilder, of the first part; the Millwall Ironworks and Shipbuilding Company, Limited, of the second part; and the Commissioners for executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Ireland, for and on behalf of Her Majesty, her heirs and successors, of the third part :

WHEREAS by a contract under seal, bearing date the 10th day of May 1862, and entered into between the said Charles John Mare, thereafter designated "the contractor" of the one part, and the said Commissioners of the other part :

part : The said contractor agreed with the said Commissioners that, in consideration of the payments therein stipulated to be made, the said contractor would, within 21 calendar months from the 2nd day of September then last, to the satisfaction of the said Commissioners, and at the cost and risk of the said contractor, in a proper and workmanlike manner, and of the best materials, build and launch in a state of readiness for the reception of her engines, an iron steam vessel for Her Majesty's service, in conformity to the drawings approved of and furnished to the said contractor by the said Commissioners, and to the specification annexed to the said contract; and would deliver the said vessel, when so built, at his own risk, cost, and expense, including dock dues and charges, safely afloat at any one of Her Majesty's dockyards or other places to be thereafter named, in all respects as required by the terms of the said contract, the hull of the ship being entirely completed for sea as usual in Her Majesty's service, with the exception of portable cabin furniture, agreeably with the drawings and specification, into the charge of such person or persons as the said Commissioners might appoint to receive the same: Provided always, that such works as could not be completed before the engines were put on board should be completed by the said contractor without any extra charge for the same during the time the engines were being fixed at the dockyard or other place to be thereafter named, which time should not exceed four months from the date of the launching of the vessel, which launching was to be 17 months from the said 2nd day of September then last past: And by the said contract, in consideration of the said contractor building, completing, and delivering the said vessel within such specified time, and at such place, and in the manner aforesaid, the said Commissioners agreed on behalf of Her Majesty, her heirs and successors, that the said contractor should be paid for the said vessel by bills on Her Majesty's Paymaster General, payable in seven days after the date thereof at and after the rate of 44 *l.* 12 *s.* for each ton, builder's measurement, calculated according to the rule in use in the department of the Controller of the Navy, viz., for so many tons as the said vessel should measure not exceeding 6,620 $\frac{9}{16}$ tons, builder's measurement, as aforesaid; but not for any greater number of tons, unless any increase of scantlings and dimensions should be made in pursuance of an order in writing under the hands of the said Commissioners, or of their Secretary for the time being, such rate per ton being the entire compensation and payment for the said vessel, and to be paid in the manner and in the instalments mentioned in the conditions of payment set forth in the said specification, or in such larger payments as the Commissioners might think fit (but not otherwise) to direct, and the balance that should be due for the said vessel when the officer or officers of the said Commissioners should have given such certificate as therein mentioned. The said contract then contained divers provisions with reference to the said works, and to the contractor failing to perform his said contract, and in particular for the due performance of the said contract, and every part thereof, the contractor thereby bound himself, his heirs, executors, and administrators, in the sum of 5,000 *l.* to be paid to Our Sovereign Lady the Queen, her heirs and successors, by way of stipulated or ascertained damages over and above the amount of any other sum which the contractor may have thereby rendered himself liable to pay, in case of any failure on his part, in the due execution of the said contract, or any part thereof: And it was by the said contract provided that the contractor should not, without the consent in writing of the said Commissioners for the time being, assign or transfer the same: And whereas the period of 17 months from the said 2nd day of September 1861, within which the said vessel should have been launched under the terms of the said contract expired on the 2nd day of February last, and the period of 21 calendar months within which under the said contract the said vessel should be built and launched in a state of readiness for the reception of her engines, and delivered to the said Commissioners will expire on the 2nd day of June next: And whereas, having regard to the progress made in building the said vessel the terms of the said contract as to the period within which the same was to be built, launched, and delivered, cannot now be complied with: And whereas the said Charles John Mare and the said Millwall Ironworks and Shipbuilding Company, Limited, have applied to the said Commissioners to transfer the said contract to the said Millwall Ironworks and Shipbuilding Company, Limited, hereinafter called "the Company," which the said Commissioners have agreed to do upon the terms hereinafter contained:

Now this Indenture witnesseth that it is hereby contracted, agreed, and declared between and by the parties hereto, as follows :

That from and after the date of these presents the said Company shall be substituted as the contractors for the vessel agreed to be built by the said Charles John Mare under the hereinbefore-recited contract in the place and stead of the said Charles John Mare : And in consideration thereof, the said Company hereby agree with the said Commissioners to be bound by, and to execute the said contract, except so far as the terms thereof are varied by the provisions hereinafter contained in as full and ample a manner as if the said Company had been named in the said contract as the parties thereto, of the one part, in the place of the said Charles John Mare, and that the said Commissioners shall have the same powers of enforcing the said contract, except so far as the same is varied as aforesaid against the said Company as they would have had against the said Charles John Mare, if these presents had not been executed.

And it is hereby further agreed and declared that the said contract shall be and the same is hereby varied in the following particulars ; that is to say,

The amount to be paid for the said vessel shall be calculated at and after the rate of 48 *l.* 10 *s.* for each ton, instead of at and after the rate of 44 *l.* 12 *s.* as provided by the said contract.

The period of 17 calendar months from the 2nd day of September 1861, within which the said vessel was to be launched, shall be extended to 16 calendar months from the date of these presents, and the period of 21 months from the said 2nd day of September 1861, within which the said vessel was to be built and delivered to the said Commissioners, shall be extended to 20 calendar months from the date of these presents. The sum of 5,000 *l.* agreed to be paid by the said Charles John Mare over and above the amount of any other sums which he might have made himself liable to pay in case of the failure on his part in the due execution of the said contract, shall not be demanded by the said Commissioners, their successors in office, or assigns ; but in lieu thereof, and in order to ensure the due completion of the said contract and of this agreement, the following provisions shall be substituted ; that is to say,

Within four calendar months from the date of these presents there shall be altogether 1,200 tons of iron worked into the hull of the said ship, properly and permanently fitted to the satisfaction of the overseer of the said Commissioners, and 200 tons more of iron either worked into the hull of the said ship in manner aforesaid, or prepared on the premises where the said ship shall be building ready to go into place, and 100 tons of armour plates of the quality approved of by the Controller of the Navy ; and the whole of the plank and deals for decks, and one-half of the teak required for armour backing shall be upon the said premises and appropriated to the said ship.

Within eight calendar months from the date of these presents there shall be altogether 2,100 tons of iron worked into the hull of the said ship, properly and permanently fitted to the satisfaction of the overseer of the said Commissioners, and 150 tons more of iron either worked into the hull of the said ship, or prepared on the said premises ready to go into place ; and 400 tons of armour plates of the quality approved by the Controller of the Navy, and the whole of the plank and deals for decks ; and all the teak required for armour backing and inside work of the ship shall be upon the said premises and appropriated to the said ship.

Within 11 calendar months from the date of these presents there shall be altogether 2,950 tons of iron worked into the hull of the said ship, properly and permanently fitted to the satisfaction of the overseer of the said Commissioners, and 150 tons more of iron, either worked into the hull of the said ship, or prepared on the said premises, ready to go into place ; and 1,000 tons of armour plates of the quality approved by the Controller of the Navy, and the whole of the plank and deals for decks, and all the teak required for armour backing and inside work of the ship shall be on the said premises and appropriated to the said ship.

Within 16 calendar months from the date of these presents, the ship shall be in a fit state for launching and receiving her machinery to the satisfaction of the Controller of the Navy, or such other person or persons as he may appoint :

appoint : And all the armour backing shall be fitted, fastened, and caulked ready to receive the armour plates, and the said ship shall be safely launched, and two-thirds of her decks be laid ; and 1,700 tons of armour plates of the quality approved by the Controller of the Navy, shall be provided and appropriated to the said ship, either on the said premises, or at such other place as the said ship may be removed to after being launched.

And within 20 calendar months from the date of these presents, the said ship shall be delivered up complete, in conformity with the terms of the said contract and this agreement, and to the satisfaction of the Controller of the Navy.

On the expiration of each of the said periods of 4, 8, 11, and 16 calendar months respectively from the date of these presents, the Controller of the Navy, or such other person or persons as the said Commissioners shall direct, shall survey the said vessel, and shall certify in writing to the said Commissioners for the time being, the amount of work done on, and materials provided for, the said vessel at the expiration of each such period ; and in case the amount of work certified to have been done on, and materials provided for, the said vessel at the expiration of any such period shall be less than the amount of work and materials hereinbefore agreed to be done and provided at the expiration of such period, the said Company shall pay to our said Lady the Queen, the sum of 1,000 £. by way of stipulated or ascertained damages agreed upon between the said Commissioners and the said Company, in respect of each such period during which the amount of work and materials hereinbefore agreed to be done and provided, shall not be certified to have been done or provided, and in addition to any other sum or sums which the said Company may have rendered themselves liable to pay, in case of any failure on their part, in the due execution of the said contract, and of this agreement, or any part thereof. And the certificate of the Controller of the Navy, or of such other person or persons as the said Commissioners shall appoint, shall be conclusive as to the amount of work done on, and materials provided for, the said vessel.

If the said Company fail to deliver the said vessel in conformity with the terms of the said contract and of this agreement within 20 calendar months from the date of these presents, the said Company shall, in addition to the said sum of 1,000 £. hereinbefore provided to be paid by them, and to any other sum or sums which they may have rendered themselves liable to pay as aforesaid, pay to our said Lady the Queen, her heirs and successors, by way of stipulated or ascertained damages as aforesaid, the sum of 1,000 £. for each calendar month which shall elapse between the expiration of the said period of 20 calendar months from the date of these presents, and the day on which the said vessel shall be delivered according to the terms of the said contract and of this agreement : Provided always, that nothing herein contained is to prevent the said Company from executing a greater amount of work on the said vessel during any of the periods aforesaid, than the amount hereby agreed to be done, or from launching the said vessel before the expiration of 16 calendar months from the date of these presents, or from delivering the said vessel before the expiration of 20 calendar months from the date of these presents ; and that if, notwithstanding any sum of money shall have become payable under the said contract or this agreement by the said Company, by reason of their having failed to execute the amount of work in, or to provide the quantity of materials for the said vessel in any the periods aforesaid, the said vessel shall be delivered within 20 calendar months from the date of these presents, in pursuance of the terms of the said contract and of this agreement, that then and in such case the sum or sums of money so payable by the said Company, shall not be demanded, but in any other event the payment of the same and every part thereof will be enforced.

It shall be lawful for the said Commissioners, when and as they may think proper to select armour plates from time to time as sample plates to be tested by being fired at, at Portsmouth, or any other place that may be named. Such of these sample plates as are reported on as having stood the test in a satisfactory manner, will be paid for by the said Commissioners, but those which do not stand the test in a satisfactory manner, will not be paid for (nor the expenses of carriage), and the plates from which these were taken as samples will be rejected.

All the plates are to be manufactured to the satisfaction of the Government

officers, who shall have power to reject any plates which are not so manufactured.

And it is hereby lastly agreed and declared that the amount to become due to the said Company under the said contract and these presents, shall be paid by the said Commissioners to the said Company, by such bills as in the said contract mentioned, but by the instalments, and at the times mentioned in the said conditions of payment contained in the Schedule hereto. And the said Company shall at all times render to the overseer of the said Commissioners for the time being, all such assistance as he may require for the purpose of ascertaining the amount of such work done on, and materials provided for, the said vessel.

In witness whereof the said parties to these presents have hereunto set their hands and seals the day and year first above written.

THE SCHEDULE.

Instalments Payable as follows :—	CONDITIONS OF PAYMENT.
1st.—1-20th.	When 450 tons of iron are worked into the hull of the ship, or prepared on the premises where the vessel shall be building, ready to go into place.
2nd.—1-20th.	When 600 tons of iron are worked into the hull of the ship, and 300 tons more either worked into the ship or prepared on the said premises ready to go into place.
3rd.—1-20th.	When 800 tons of iron are worked into the hull of the ship, and 300 tons more either worked into the ship or prepared on the said premises ready to go into place, and all the planks and deals for decks are provided and on the said premises and appropriated to the said ship.
4th.—1-20th.	When 1,100 tons of iron are worked into the hull of the ship, and 200 tons more either worked into the ship or prepared on the said premises ready to go into place, and 60 tons of armour plates of the quality approved by the Controller of the Navy, and half the teak required for armour backing are provided and on the said premises appropriated to the said ship.
5th.—1-20th.	When 1,400 tons of iron are worked into the hull of the ship, and 200 tons more are either worked into the ship or prepared on the premises ready to go into place, and 160 tons of armour plates of approved quality are provided and on the said premises.
6th.—1-20th.	When 1,700 tons of iron are worked into the hull of the ship, and 200 tons more either worked into the ship or prepared on the premises ready to go into place, and 250 tons of armour plates of approved quality are provided and on the said premises.
7th.—1-20th.	When 2,050 tons of iron are worked into the hull of the ship, and 150 tons more either worked into the ship or prepared on the premises ready to go into place, and 350 tons of armour plates of approved quality, and all the teak required for armour backing and inside work of the ship, are provided and on the said premises appropriated to the ship.
8th.—1-20th.	When 2,300 tons of iron are worked into the hull of the ship, and 150 tons more either worked into the ship or prepared on the premises ready to go into place, and 500 tons of armour plates of approved quality are provided and on the said premises appropriated to the ship.
9th.—1-20th.	When 2,500 tons of iron are worked into the hull of the ship, and 150 tons more are either worked into the ship or prepared on the premises ready to go into place, and 650 tons of armour plates of approved quality are provided and on the said premises appropriated to the ship.
10th.—1-20th.	When 2,700 tons of iron are worked into the hull of the ship, and 150 tons more either worked into the ship or prepared on the premises ready to go into place, and 800 tons of armour plates of approved quality are provided and on the said premises appropriated to the said ship.

Instalments
Payable
as follows:—

CONDITIONS OF PAYMENT—*continued.*

11th.—1-20th.	When 2,850 tons of iron are worked into the hull of the ship, and 150 tons more either worked into the ship or prepared on the premises ready to go into place, and 950 tons of armour plates of approved quality are provided and on the said premises appropriated to the ship.
12th.—1-20th.	When 2,950 tons of iron are worked into the hull of the ship, and 150 tons more either worked into the ship or prepared on the said premises ready to go into place, and 1,100 tons of armour plates of approved quality are provided and on the said premises appropriated to the ship.
13th.—1-20th.	When 3,050 tons of iron are worked into the hull of the ship, and 150 tons more either worked into the ship or prepared on the premises ready to go into place, and 1,300 tons of armour plates of approved quality are provided and on the said premises appropriated to the ship.
14th.—1-20th.	When 3,200 tons of iron are worked into the hull of the ship, and 100 tons more either worked into the ship or prepared on the premises ready to go into place, and 1,500 tons of armour plates of approved quality are provided and on the said premises appropriated to the ship.
15th.—1-20th.	When the ship has been brought into a fit state for launching and for receiving her machinery and armour plates, safely launched, and two-thirds of each of the decks laid, the magazine and shell rooms built, and 1,700 tons of armour plates of approved quality are provided and appropriated to the ship and either on the said premises or at such other place as the ship may be removed to after being launched.
16th.—1-10th.	When all the armour plates are fixed to the ship, the ship in a fit state to receive her masts and lower rigging, and the inside wood lining between decks completed.
Final.	When the ship has been delivered up complete, in accordance with the contract.

Chas. Jno. (L. S.) Mare.

On behalf of the Millwall Iron Works and Ship-
building Company, Limited, their common seal
affixed, this 8th day of June 1863, by

D. Ward Chapman,
Thomas Brassey, jun., } Directors.

(L. S.)

Jno. Wm. Gray (L. S.)
J. R. Drummond (L. S.)

Signed, sealed, and delivered by the within named
Charles John Mare, in the presence of

Wm. Cox,
84, King William-street,
Clerk to Thomas Bierne, Esq.,
14 July 1863.

Signed, sealed, and delivered by Vice Admiral the
Honourable Sir Frederick William Grey, K.C.B.,
and Captain the Honourable James Robert
Drummond, C.B., two of the Commissioners for
executing the office of Lord High Admiral of the
United Kingdom of Great Britain and Ireland,
in the presence of

Alf. R. Bristow,
Solicitor of the Admiralty.

THIS INDENTURE, made the 25th day of March 1865, between the within named Millwall Iron Works and Shipbuilding Company (Limited) as liquidators, hereinafter called "the Company," of the first part; Thomas Robert Tufnell, of George-yard, Lombard-street, in the City of London, and James Lyster O'Beirne, of King William-street, in the same city, esquires, the liquidators of the said Company, duly appointed in that behalf in pursuance of the provisions of "the Companies Act, 1862," of the second part; and the within-named Commissioners for executing the office of Lord High Admiral of the United Kingdom of Great Britain and Ireland, for and on behalf of Her Majesty, her heirs and successors, hereinafter called "the Commissioners," of the third part.

WHEREAS, since the execution of the within written Indenture, the Company have proceeded with the construction of the vessel thereby, and by the therein recited contract of the 10th day of May 1862 agreed to be built, and the first 12 instalments of the monies payable under and by virtue of the said Indenture, have been duly paid to the Company or to the aforesaid liquidators, according to the conditions of payment mentioned in the Schedule to the said Indenture: And whereas, at a special general meeting of the said Company, held on the 12th day of July 1864, and duly convened in that behalf, it was resolved that the said Company should be voluntarily wound up, under the provisions of the aforesaid Act, which resolution was, at another special general meeting held on the 2nd day of August 1864, duly confirmed; and the said Thomas Robert Tufnell and James Lyster O'Beirne were then duly appointed the liquidators of the said Company: And whereas, the said liquidators and the Commissioners have agreed to vary, in manner hereinafter appearing, the conditions of payment for the 13th and following instalments of the monies payable under the said Indenture: Now this Indenture witnesseth, that it is hereby contracted, agreed, and declared between, and by the Company, by the liquidators aforesaid, and the Commissioners, as follows, that is to say: That the 13th, 14th, 15th, 16th, and final conditions of payment mentioned in the Schedule to the within written Indenture shall be cancelled, and that the conditions of payment mentioned in the Schedule hereto shall be substituted for the conditions hereby agreed to be cancelled as aforesaid: That the within written Indenture and every matter and thing therein contained, except so far as the same is varied by these presents, shall be as binding on the parties thereto as the same would have been if these presents had not been made and executed.

In witness whereof the within named Company have hereunto caused their common seal to be affixed, and the said Commissioners have hereunto set their hands and seals the day and year first above written.

THE SCHEDULE.

- | | |
|---------------|--|
| 13th.—1-20th. | When 3,050 tons of iron are worked into the hull of the ship, and 150 tons more either worked into the ship or prepared on the premises ready to go into place, and 1,150 tons of armour plates of approved quality are provided on the premises in the said Indenture mentioned and appropriated to the ship. |
| 14th.—1-20th. | When 3,200 tons of iron are worked into the hull of the ship, and 100 tons more either worked into the ship or prepared on the said premises ready to go into place, and 1,350 tons of armour plates of approved quality are provided and on the said premises appropriated to the ship. |
| 15th.—1-20th. | When 3,600 tons of iron are worked into the hull of the ship, the magazines and shell rooms built, three-fourths of the main and lower decks laid, three-fourths of the wood backing fitted and fastened to the sides, 1,450 tons of armour plates of approved quality are provided on the premises and appropriated to the ship. |
| 16th.—1-20th. | When the ship has been brought into a fit state for launching and receiving her machinery and armour plates, and is safely launched, seven-eighths of each of her decks laid, the whole of the wood backing fitted and fastened to the sides, and armour bulkheads, and the whole of the armour plates required of approved quality are provided and appropriated to the ship, and either on the said premises or at such other place the ship may be removed to after being launched. |

17th.--1-20th.	When all the armour plates are fixed in the ship, the ship in a fit state to receive her masts and lower rigging, and the inside wood lining between the decks completed.
Final.	When the ship has been delivered up complete, in accordance with the contract.

The seal of the Millwall Iron Works and Shipbuilding Company, Limited, was this day affixed to this Indenture in the presence of

D. Ward Chapman, } Two of the Directors of the
R. M. Birkbeck, } said Company (L. s.)

T. R. Tufnell, } Liquidators (L. s.)
J. Lyster O'Beirne, }

Charles Eden (L. s.)
Hugh C. E. Childers (L. s.)

Signed by the above named Thomas Robert Tufnell
and James Lyster O'Bierne in presence of

Wm. Cox,
84, King William-street, London.

Signed, sealed, and delivered by Rear Admiral
Charles Eden, C. B., and Hugh Culling Eardley
Childers, Esq., two of the Commissioners for
executing the office of Lord High Admiral of
the United Kingdom of Great Britain and
Ireland, in the presence of

Alf. R. Bristow,
Solicitor of the Admiralty.

RETURN of the Date of the Original CONTRACT, and the Price to be paid Messrs. *Mare & Co.* under the Terms of such Contract for Her Majesty's Ship "NORTHUMBERLAND;" COPY OF CORRESPONDENCE showing the Circumstances under which the CONTRACT was transferred from Messrs. *Mare & Co.*, and subsequently taken by the Millwall Company, and the additional Price agreed to be paid to the Millwall Company before proceeding with the Construction of the Ship; and, RETURN of all MONIES paid for or on account of the "NORTHUMBERLAND" up to the present Date; &c.

(*Mr. Seeley.*)

*Ordered, by The House of Commons, to be Printed,
6 June 1867.*

NAVY (SHIPS SOLD).

RETURN to an Order of the Honourable The House of Commons,
dated 9 May 1867;—for,

RETURN “ of the Number of SHIPS (whether Steamers or Sailing Vessels)
SOLD by the ADMIRALTY from July 1859 to the present Date, stating
severally the Ages of the Ships, the Ages of the Engines, the Number
and Weight of Spare Screw Propellers, the Tonnage, Horse Power, and
the Net Amount of Money obtained for each Ship ; also stating against
each whether it was Publicly Advertised to be Sold by Auction, or was
Sold by Public or Private Tender, to whom Sold, and the Amount, if
any, Paid or to be Repaid to each Purchaser by the Admiralty in
Repurchasing the Stores returned bearing Broad Arrow Mark :”

“ And, COPY of OFFICIAL REPORTS relating to the Sale and Valuation of
the said SHIPS.”

Admiralty, }
15 August 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

(*Mr. Seely.*)

Ordered, by The House of Commons, to be Printed,
16 August 1867.

RETURN RELATING TO SHIPS SOLD BY ADMIRALTY

RETURN of the Number of SHIPS (whether Steamers or Sailing Vessels) SOLD by the ADMIRALTY Number and Weight of spare Screw Propellers, the Tonnage, Horse Power, and the Net Amount of Auction, or was Sold by Public or Private Tender, to whom Sold, and the Amount, if any, Paid or to be

RETURN OF SHIPS SOLD SINCE JULY 1859. - - - - -

DESCRIPTION.	NAME.	Age of Ship.	Age of Engines.	Spare Screw Propellers.		Tons.	Horse Power.	Whether Publicly Advertised by Auction, or whether Sold by Public or Private Tender.
				No.	Weight.			
		<i>Years.</i>	<i>Years.</i>		<i>Tons. cwt. qrs. lbs.</i>			
Sailing cutter - -	Sylvia - - -	32½	-	-	- - -	70	-	- - -
Ditto - - -	Netley - - -	-	-	-	- - -	122	-	- - -
Late steam vessel -	Columbia - - -	30½	-	-	- - -	361	-	- - -
Sailing cutter - -	Raven - - -	30	-	-	- - -	108	-	- - -
Sailing 5th rate - -	Africa - - -	57¼	-	-	- - -	946	-	- - -
Sailing sloop - - -	Bittern - - -	19¾	-	-	- - -	484	-	- - -
Sailing 3rd rate - -	Minden - - -	51	-	-	- - -	1,721	-	- - -
Sailing 6th rate - -	Carysfort - - -	25½	-	-	- - -	925	-	Public tender - -
Ditto - ditto - - -	Crocodile - - -	36	-	-	- - -	501	-	ditto - - -
Sailing sloop - - -	Espiègle - - -	17½	-	-	- - -	443	-	ditto - - -
Ditto - - -	Waterwitch - - -	Purchased in 1834.	-	-	- - -	319	-	ditto - - -
Ditto - - -	Lapwing - - -	36¾	-	-	- - -	228	-	ditto - - -
Ditto - - -	Spider - - -	26¼	-	-	- - -	182	-	ditto - - -
Late steam vessel -	Messenger - - -	Purchased in 1830.	-	-	- - -	733	-	ditto - - -
Sailing brig - - -	Icarus - - -	46½	-	-	- - -	234	-	- - -
Ditto - - -	Snapper - - -	47¾	-	-	- - -	184	-	- - -
Sailing tender - - -	Gossamer - - -	Purchased about 1821.	-	-	- - -	48	-	Public tender - -
Screw sloop - - -	Africa - - -	½	New	-	- - -	669	150	Private tender - -
Screw gun vessel - -	Mohawk - - -	6¾	6¾	-	- - -	679	200	ditto - - -
Ditto - ditto - - -	Arrow - - -	7¾	7¾	-	- - -	477	160	Public tender - -
Ditto - ditto - - -	Lynx - - -	7¾	7¾	-	- - -	477	80	ditto - - -
Ditto - ditto - - -	Viper - - -	7¾	7¾	-	- - -	477	80	ditto - - -
Ditto - ditto - - -	Jasper - - -	5½	5½	-	- - -	301	80	Private tender - -
Screw tender - - -	Teazer - - -	16	16	-	- - -	296	40	- - -
Paddle sloop - - -	Vixen - - -	21¾	21¾	-	- - -	1,054	280	Public tender - -
Paddle tender - - -	Cowper - - -	Purchased in 1860.	Not known.	-	- - -	342	130	- - -
Paddle distilling vessel	Waterman - - -	ditto -	ditto -	-	- - -	141	60	- - -
Sailing 4th rate - -	Portland - - -	40	-	-	- - -	1,476	-	Public tender - -
Ditto - ditto - - -	Akbar - - -	Purchased about 1806.	-	-	- - -	1,388	-	ditto - - -
Sailing 5th rate - -	Inconstant - - -	26½	-	-	- - -	1,421	-	Private tender - -
Ditto - ditto - - -	Lively - - -	48¾	-	-	- - -	1,080	-	Public tender - -
Ditto - ditto - - -	Palas - - -	45¾	-	-	- - -	951	-	ditto - - -
Sailing 6th rate - -	Niobe - - -	12¾	-	-	- - -	1,052	-	- - -
Ditto - ditto - - -	Spartan - - -	20¾	-	-	- - -	918	-	Public tender - -
Ditto - ditto - - -	Cleopatra - - -	26¾	-	-	- - -	918	-	ditto - - -
Ditto - ditto - - -	Vestal - - -	28¾	-	-	- - -	913	-	ditto - - -

from July 1859 to the present Date, stating severally the Ages of the Ships, the Ages of the Engines, the Money obtained for each Ship; also stating against each whether it was Publicly Advertised to be Sold by Repaid to each Purchaser by the Admiralty in Repurchasing the Stores returned bearing Broad Arrow Mark.

- - - - - RETURN OF SHIPS SOLD SINCE JULY 1859.

To whom Sold.	Gross Amount of Money obtained for each Ship.	Amount Paid to each Purchaser by the Admiralty in Repurchasing Stores Returned bearing $\blacktriangle$.	Amount to be Paid to each Purchaser by the Admiralty in Repurchasing Stores Returned bearing $\blacktriangle$.	Net Amount obtained for each Ship after abating Amount Paid for Stores Returned.	Estimated Value, as reported by Dockyard Officers.	
					Hull.	Machinery.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
- - - - -	253 8 -	- - -	- - -	253 8 -	- - -	- - -
Wm. John Woods, Halifax, N. S.	70 8 4	- - -	- - -	70 8 4	- - -	Sold abroad.
Sold at Jamaica - - -	500 - -	- - -	- - -	500 - -	- - -	ditto.
Messrs. Hunt, Aldborough - -	160 - -	214 15 -	- - -	54 15 -	- - -	- - -
Mr. Recano, Gibraltar - - -	337 6 8	- - -	- - -	337 6 8	- - -	Sold abroad.
Sold at Hong Kong - - -	1,000 5 2	- - -	- - -	1,000 5 2	- - -	ditto.
Sold at Hong Kong - - -	3,995 - -	- - -	- - -	3,995 - -	- - -	ditto.
Messrs. Ritherdon & Thompson -	1,800 - -	1,332 7 9	- - -	467 12 3	3,618 - -	- - -
Messrs. Castle & Sons - - -	1,015 - -	401 2 10	- - -	613 17 2	hull and fixtures. 3,000 - -	- - -
- ditto - ditto - - -	805 - -	640 6 -	- - -	164 14 -	hull and fixtures. 1,500 - -	- - -
- ditto - ditto - - -	760 - -	141 - 9	- - -	618 19 3	hull and fixtures. 1,000 - -	- - -
Messrs. Marshall - - -	305 - -	305 18 4	- - -	- 18 4	hull and fixtures. 310 - -	- - -
Mr. Clark - - -	375 - -	336 16 9	- - -	38 3 3	hull and fixtures. 380 - -	- - -
Messrs. Castle & Son - - -	360 - -	166 11 3	- - -	193 8 9	hull and fixtures. 567 - -	- - -
Mr. Ransom - - -	450 - -	449 8 -	- - -	- 12 -	hull and fixtures. 510 - -	- - -
Messrs. Castle & Son - - -	302 - -	146 12 1	- - -	155 7 11	hull and fixtures. 412 7 6	- - -
Mr. Levy - - -	230 - -	123 15 7	- - -	106 4 5	hull and fixtures. 180 - -	- - -
Chinese Government - - -	23,800 - -	- - -	- - -	23,800 - -	16,500 - -	7,300 - -
- ditto - - -	17,450 - - and 2,478 l. 19 s. 7 d., for stores left on board.	- - -	- - -	17,450 - -	{ 9,000 l. hull - } { 3,000 l. stores }	8,450 - - including expense of two new boilers.
Messrs. Marshall - - -	482 - -	557 3 10	- - -	75 3 10	hull and fixtures. 950 - -	- - -
- ditto - - -	482 - -	555 8 8	- - -	73 8 8	hull and fixtures. 950 - -	- - -
- ditto - - -	482 - -	604 7 3	- - -	122 7 3	hull and fixtures. 950 - -	- - -
Chinese Government - - -	8,000 - -	- - -	- - -	8,000 - -	4,000 - -	4,000 - -
Messrs. Castle & Son - - -	525 - -	169 13 11	- - -	355 6 1	(Given by Controller's Office.) 500 - -	800 - -
- ditto - ditto - - -	3,740 - -	1,693 19 11	- - -	2,046 - 1	13,670 l., hull and engines.	- - -
Mr. Lepraik, Hong Kong - - -	10,218 9 4	- - -	- - -	10,218 9 4	- - -	Sold abroad.
Mr. N. Hill, Hong Kong - - -	4,132 1 4	- - -	- - -	4,132 1 4	- - -	ditto.
Messrs. Castle & Son - - -	2,250 - -	2,091 16 5	- - -	158 3 7	4,000 - -	- - -
Mr. Robinson - - -	1,030 - -	414 - 5	- - -	615 19 7	hull and fixtures. 5,019 18 11	- - -
Messrs. Scott - - -	3,500 - -	1,790 13 -	- - -	1,709 7 -	3,500 - -	- - -
Messrs. Marshall - - -	1,215 - -	1,628 7 11	- - -	413 7 11	hull and fixtures. 1,960 - -	- - -
- ditto - - -	1,426 - -	1,055 5 4	- - -	370 14 8	hull and fixtures. 1,620 - -	- - -
Prussian Government - - -	10,520 - - and 5,371 l. 18 s. 11 d., for stores left on board.	- - -	- - -	10,520 - -	14,520 - -	- - -
Messrs. Castle & Son - - -	1,875 - -	1,381 2 4	- - -	493 17 8	hull and fixtures and stores. 2,300 - -	- - -
Messrs. Castle & Beech - - -	1,810 - -	1,467 18 6	- - -	342 1 6	hull and fixtures. 5,049 - -	- - -
- ditto - ditto - - -	1,715 - -	1,304 7 7	- - -	410 12 5	hull and fixtures. 5,021 10 -	- - -

RETURN RELATING TO SHIPS SOLD BY ADMIRALTY

DESCRIPTION.	NAME.	Age of Ship.	Age of Engines.	Spare Screw Propellers.		Tons.	Horse Power.	Whether Publicly Advertised by Auction, or whether Sold by Public or Private Tender.
				No.	Weight.			
		<i>Years.</i>	<i>Years.</i>		<i>Tons. cwt. qrs. lbs.</i>			
Sailing store ship - -	Tyne - - -	35 $\frac{1}{4}$	-	-	- - -	600	-	Public tender - -
Sailing 6th rate - -	Herald - - -	39 $\frac{1}{2}$	-	-	- - -	500	-	- ditto - - -
Sailing sloop - - -	Electra - - -	24 $\frac{1}{2}$	-	-	- - -	462	-	- ditto - - -
Ditto - - -	Jumna - - -	14 $\frac{1}{4}$	-	-	- - -	551	-	Private tender - -
Ditto - - -	Mosquito - -	11	-	-	- - -	551	-	- - -
Ditto - - -	Rover - - -	9	-	-	- - -	551	-	- - -
Ditto - - -	Pilot - - -	23 $\frac{1}{2}$	-	-	- - -	485	-	Public tender - -
Ditto - - -	Crane - - -	22 $\frac{3}{4}$	-	-	- - -	359	-	- ditto - - -
Ditto - - -	Express - - -	26 $\frac{1}{2}$	-	-	- - -	362	-	- ditto - - -
Ditto - - -	Spy - - -	20 $\frac{3}{4}$	-	-	- - -	320	-	- - -
Ditto - - -	Peterel - - -	23 $\frac{3}{4}$	-	-	- - -	359	-	Public tender - -
Sailing brig - - -	Pandora - - -	28 $\frac{1}{2}$	-	-	- - -	318	-	- ditto - - -
Ditto - - -	Pelter - - -	49	-	-	- - -	184	-	- ditto - - -
Ditto - - -	Dwarf - - -	-	-	-	- - -	75	-	- - -
Sailing lighter - -	Forester - - -	-	-	-	- - -	80	-	Public tender - -
Screw frigate - - -	Amphion - - -	17 $\frac{3}{4}$	17 $\frac{3}{4}$	1	3 8 3 16	1,474	300	Private tender - -
Screw sloop - - -	Conflict - - -	17	15	-	- - -	1,058	400	Public tender - -
Screw gun vessel - -	Victor - - -	7 $\frac{3}{4}$	7 $\frac{3}{4}$	1	3 16 2 21	859	350	Private tender - -
Ditto - ditto - -	Beagle - - -	8 $\frac{3}{4}$	8 $\frac{3}{4}$	-	- - -	477	80	- - -
Paddle frigate - -	Vulture - - -	20	20	-	- - -	1,191	470	Public tender - -
Paddle sloop - - -	Hecla - - -	24 $\frac{1}{2}$	24 $\frac{1}{2}$	-	- - -	817	240	Private tender - -
Ditto - - -	Prometheus - -	23 $\frac{1}{2}$	23 $\frac{1}{2}$	-	- - -	796	200	Public tender - -
Paddle small vessel -	Avon - - -	37 $\frac{1}{4}$	37 $\frac{1}{4}$	-	- - -	361	160	- ditto - - -
Ditto - ditto - -	Merlin - - -	24 $\frac{3}{4}$	24 $\frac{3}{4}$	-	- - -	889	312	Private tender - -
Sailing 3rd rate - -	Armada - - -	53 $\frac{1}{4}$	-	-	- - -	1,749	-	- ditto - - -
Sailing 5th rate - -	Thames - - -	40 $\frac{1}{4}$	-	-	- - -	1,088	-	- - -
Ditto - ditto - -	Druid - - -	37 $\frac{3}{4}$	-	-	- - -	1,169	-	Public tender - -
Sailing 6th rate - -	Amazon - - -	42	-	-	- - -	1,078	-	- ditto - - -
Sailing surveying vessel -	Gun'ware - - -	Purchased in 1855.	-	-	- - -	31	-	- - -
Late steamer - - -	Brune - - -	6 $\frac{3}{4}$	-	-	- - -	267	-	- - -
Screw sloop - - -	Phoenix - - -	31 $\frac{1}{4}$	21	-	- - -	809	260	Public tender - -
Paddle frigate - -	Cyclops - - -	24 $\frac{1}{2}$	24 $\frac{1}{2}$	-	- - -	1,195	320	
Screw gun boat - -	Partridge - - -	8 $\frac{1}{2}$	8 $\frac{1}{2}$	-	- - -	234	60	- ditto - - -
Paddle frigate - -	Odin - - -	18	18	-	- - -	1,310	560	Private tender - -
Ditto - - -	Penelope - - -	34 $\frac{3}{4}$	21	-	- - -	1,616	650	- ditto - - -
Ditto - - -	Retribution - -	20	14	-	- - -	1,641	400	- ditto - - -
Ditto - - -	Sampson - - -	19 $\frac{3}{4}$	19 $\frac{3}{4}$	-	- - -	1,299	467	- ditto - - -
Paddle sloop - - -	Fury - - -	18 $\frac{1}{2}$	18 $\frac{1}{2}$	-	- - -	1,124	515	- ditto - - -

To whom Sold.	Gross Amount of Money obtained for each Ship.		Amount Paid to each Purchaser by the Admiralty in Repurchasing Stores Returned bearing $\frac{1}{2}$.		Amount to be Paid to each Purchaser by the Admiralty in Repurchasing Stores Returned bearing $\frac{1}{2}$.		Net Amount obtained for each Ship after abating Amount Paid for Stores Returned.		Estimated Value, as reported by Dockyard Officers.	
	£.	s. d.	£.	s. d.	£.	s. d.	£.	s. d.	Hull.	Machinery.
Messrs. Castle & Beech - -	1,200	- -	912	13 8	-	-	287	6 4	3,600 - - hull and fixtures.	-
Messrs. Castle & Sons - -	1,635	- -	732	4 4	-	-	902	15 8	2,562 10 - hull and fixtures.	-
Mr. Foord - - - -	950	- -	953	1 9	-	-	3	1 9	1,386 - - hull and fixtures.	-
Capt. Lynch - - - -	1,650	- -	304	8 8	-	-	1,345	11 4	2,745 - -	-
Prussian Government - -	8,402	- -	-	- -	-	-	8,402	- -	8,402 - -	-
- ditto - - - -	and 3,426 l. 16 s. 10 d., for stores left on board.		-	- -	-	-	8,265	- -	8,265 - -	-
- ditto - - - -	and 3,498 l. 15 s. 10 d., for stores left on board.		-	- -	-	-	8,265	- -	8,265 - -	-
Messrs. Marshall - - - -	802	- -	905	- 9	-	-	103	- 9	980 - - hull and fixtures.	-
- ditto - - - -	670	- -	259	2 1	-	-	410	17 11	791 - - hull and fixtures.	-
- ditto - - - -	635	- -	773	5 7	-	-	138	5 7	761 - - hull and fixtures.	-
Sold at Monte Video - -	619	14 2	-	- -	-	-	619	14 2	- - - Sold abroad.	-
Messrs. Marshall - - - -	630	- -	1,142	17 10	-	-	512	17 10	761 - - hull and fixtures.	-
- ditto - - - -	600	- -	735	9 7	-	-	135	9 7	620 - - hull and fixtures.	-
Mr. Tolpult - - - -	32	- -	-	- -	-	-	32	- -	74 l., valued by an auctioneer for Comptroller General of Coast Guard.	-
Messrs. Hood - - - -	72	7 -	141	- 8	-	-	68	13 8	-	-
Mr. Shrubsole - - - -	93	- -	-	- -	-	-	93	- -	from 42 l. to 65 l., valued by tradesmen for Comptroller General of Coast Guard.	-
Messrs. Williams & Co. - -	6,600	- -	-	- -	-	-	6,600	- -	5,100 - - hull and fixtures.	1,500 - -
Messrs. Habgood - - - -	1,555	- -	1,641	7 9	-	-	86	7 9	2,000 - -	-
Messrs. Coleman & Co. - -	9,375	- -	445	7 6	-	-	8,929	12 6	8,830 l. hull and engines.	-
- - - -	5,500	- -	-	- -	-	-	5,500	- -	- - - Sold abroad.	-
Messrs. Castle & Son - -	4,010	- -	1,737	8 10	-	-	2,272	11 2	2,400 - -	2,500 - -
Messrs. Williams & Co. - -	2,550	- -	1,600	11 9	-	-	949	8 3	1,200 - - (for breaking up.)	900 - -
Messrs. Castle & Son - -	1,525	- -	526	9 9	-	-	998	10 3	3,980 - -	1,500 - -
Messrs. Marshall - - - -	1,225	- -	32	14 1	-	-	1,192	5 11	450 - -	1,750 - -
Messrs. Williams & Co. - -	3,000	- -	1,223	5 3	-	-	1,776	14 9	6,000 - - (for sea service.)	5,000 - -
Messrs. Marshall - - - -	2,600	- -	3,477	14 -	-	-	877	14 -	2,000 - - (if broken up.)	1,000 - -
Mr. Murphy, Bermuda - -	900	- -	1,429	9 8	-	-	529	9 8	3,000 - -	-
Messrs. Marshall - - - -	2,086	17 6	1,844	15 9	-	-	242	1 9	- - - Sold abroad.	-
Mr. Lethbridge - - - -	1,820	- -	1,580	18 6	-	-	239	1 6	4,044 13 6	-
- - - -	76	13 -	-	- -	-	-	76	13 -	1,500 l. for breaking up, exclusive of copper sheathing, valued at 400 l.	-
- - - -	-	- -	-	- -	-	-	-	- -	77 - - hull, fixtures, and stores.	-
Sold at Lagos - - - -	25	- -	-	- -	-	-	25	- -	- - - Sold abroad.	-
Messrs. Castle & Son - -	8,000	- -	7,225	14 11	-	-	774	5 1	6,140 l., hull and engines.	-
Messrs. Habgood - - - -	605	- -	537	9 4	-	-	67	10 8	5,760 l., hull and engines.	-
Messrs. Castle & Beech - -	4,900	- -	3,354	15 5	-	-	1,545	4 7	580 - -	-
- ditto - ditto - - - -	5,750	- -	3,444	1 -	-	-	2,305	19 -	3,096 - - (for breaking up.)	2,000 - -
- ditto - ditto - - - -	4,800	- -	3,971	12 9	-	-	828	7 3	3,639 - - (for breaking up.)	2,400 - -
- ditto - ditto - - - -	4,574	- -	2,568	17 2	-	-	2,005	2 10	3,633 - - (for breaking up.)	1,350 - -
- ditto - ditto - - - -	4,376	- -	3,216	4 9	-	-	1,159	15 3	2,836 - - (for breaking up.)	1,750 - -
- ditto - ditto - - - -	-	- -	-	- -	-	-	-	- -	2,511 - - (for breaking up.)	2,000 - -

RETURN RELATING TO SHIPS SOLD BY ADMIRALTY

DESCRIPTION.	NAME.	Age of Ship.	Age of Engines.	Spare Screw Propellers.		Tons.	Horse Power.	Whether Publicly Advertised by Auction, or whether Sold by Public or Private Tender.
				No.	Weight.			
		<i>Years.</i>	<i>Years.</i>		<i>Tons. cwt. qrs. lbs.</i>			
Paddle frigate - - -	Sidon - - -	18 $\frac{1}{4}$	18 $\frac{1}{4}$	-	- - -	1,316	560	Private tender - -
Ditto - - -	Infexible - - -	19	19	-	- - -	1,122	378	- ditto - - -
Paddle tug - - -	Cuckoo - - -	42	42	-	- - -	234	100	Public tender - -
Sailing 4th rate - -	Lancaster - - -	40 $\frac{1}{2}$	-	-	- - -	1,478	-	- ditto - - -
Sailing 5th rate - -	Andromeda - - -	34 $\frac{3}{4}$	-	-	- - -	1,215	-	- ditto - - -
Ditto - - -	Proserpine - - -	33	-	-	- - -	1,078	-	- ditto - - -
Ditto - - -	Dromedary - - -	built before 1806.	-	-	- - -	1,048	-	- - -
Sailing 6th rate - -	Sapphire - - -	37 $\frac{3}{4}$	-	-	- - -	606	-	- - -
Sailing sloop - - -	Cadmus - - -	56	-	-	- - -	237	-	Public tender - -
Ditto - - -	Eclipse - - -	44 $\frac{1}{4}$	-	-	- - -	235	-	- - -
Ditto - - -	Partridge - - -	34 $\frac{1}{4}$	-	-	- - -	231	-	Public tender - -
Sailing surveying vessel -	Woodlark - - -	42 $\frac{1}{4}$	-	-	- - -	80	-	- - -
Screw block ship - -	Edinburgh - - -	54 $\frac{3}{4}$	13	1	5 15 3 15	1,772	450	Private tender - -
Screw sloop - - -	Ariel - - -	10 $\frac{3}{4}$	10 $\frac{3}{4}$	1	0 15 0 0	486	60	Public tender - -
Screw gun vessel - -	Plover - - -	5 $\frac{3}{4}$	5 $\frac{3}{4}$	-	- - -	426	80	- ditto - - -
Screw gun boat - - -	Sheldrake - - -	9 $\frac{3}{4}$	9 $\frac{3}{4}$	-	- - -	234	60	- - -
Screw mortar ship - -	Eurotas - - -	36 $\frac{3}{4}$	9	1	2 11 0 0	1,201	200	Private tender - -
Ditto - - -	Horatio - - -	58 $\frac{1}{2}$	15	1	4 3 1 4	1,090	250	- ditto - - -
Sailing 2nd rate - -	Achille - - -	60 $\frac{3}{4}$	-	-	- - -	1,981	-	- ditto - - -
Sailing 3rd rate - -	Hercules - - -	50	-	-	- - -	1,750	-	- - -
Sailing 4th rate - -	Weymouth - - -	purchased be- fore 1804.	-	-	- - -	826	-	- - -
Sailing sloop - - -	Mariner - - -	18 $\frac{3}{4}$	-	-	- - -	481	-	Private tender - -
Ditto - - -	Childers - - -	32	-	-	- - -	385	-	Public tender - -
Ditto - - -	Emulous - - -	45 $\frac{1}{2}$	-	-	- - -	235	-	- ditto - - -
Ditto - - -	Pelican - - -	52 $\frac{3}{4}$	-	-	- - -	385	-	- ditto - - -
Screw frigate - - -	Tribune - - -	13 $\frac{1}{2}$	13 $\frac{1}{2}$	1	5 5 0 0	1,570	300	- ditto - - -
Screw gun boat - - -	Staunch - - -	10 $\frac{3}{4}$	10 $\frac{3}{4}$	-	- - -	235	60	- - -
Ditto - - -	Kestrel - - -	9 $\frac{3}{4}$	9 $\frac{1}{4}$	-	- - -	238	40	- - -
Screw store ship - -	Wye - - -	transferred to the Admiralty in 1855.	12	-	- - -	700	100	Public tender - -
Paddle tender - - -	Coromandel - - -	13	13	-	- - -	303	150	- - -
Sailing 3rd rate - -	Medway - - -	53	-	-	- - -	1,768	-	- - -
Sailing 6th rate - -	Alligator - - -	44 $\frac{1}{2}$	-	-	- - -	500	-	- - -
Screw line-of-battle ship -	Orion - - -	12 $\frac{1}{4}$	12 $\frac{1}{4}$	1	8 10 0 0	3,281	600	Private tender - -
Ditto - - -	Collingwood - - -	25 $\frac{1}{2}$	6	-	- - -	2,611	400	- ditto - - -
Screw frigate - - -	Leander - - -	19	6	-	- - -	2,760	400	- ditto - - -
Screw line-of-battle ship -	Cressy - - -	13 $\frac{1}{2}$	13 $\frac{1}{2}$	1	6 12 2 23	2,540	400	- ditto - - -
Screw frigate - - -	Chesapeake - - -	11 $\frac{1}{2}$	11 $\frac{1}{2}$	1	6 19 2 14	2,377	400	- ditto - - -
Screw line-of-battle ship -	Majestic - - -	13 $\frac{1}{4}$	13 $\frac{1}{4}$	1	4 7 0 0	2,566	400	- ditto - - -
Ditto - - -	Brunswick - - -	11 $\frac{3}{4}$	11 $\frac{3}{4}$	1	4 7 0 0	2,492	400	- ditto - - -
Ditto - - -	Sans Pareil - - -	16	12	1	5 8 0 0	2,339	400	- ditto - - -

To whom Sold.	Gross Amount of Money obtained for each Ship.	Amount Paid to each Purchaser by the Admiralty in Repurchasing Stores Returned bearing A.	Amount to be Paid to each Purchaser by the Admiralty in Repurchasing Stores Returned bearing A.	Net Amount obtained for each Ship after abating Amount Paid for Stores Returned.	Estimated Value, as reported by Dockyard Officers.	
					Hull.	Machinery.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Messrs. Castle & Beech - -	5,100 - -	2,886 9 7	- -	2,213 10 5	2,935 - -	2,100 - - (for breaking up.)
" ditto - - - -	4,224 - -	2,387 9 9	- -	1,836 10 3	2,696 - -	1,350 - - (for breaking up.)
Mr. Williams - - - -	600 - -	1,063 16 8	- -	463 16 8	440 - -	- -
Messrs. Marshall - - -	3,025 - -	3,779 4 -	- -	755 4 -	4,500 - -	- - hull and fixtures.
Messrs. Bennett & Wake - -	4,500 - -	744 4 2	- -	3,755 15 10	5,000 - -	- -
Mr. R. Ridley - - - -	2,460 - -	621 12 1	- -	1,838 7 11	3,000 - -	- -
Mr. Murphy, Bermuda - -	300 - -	454 6 10	- -	154 6 10	- -	Sold abroad.
Sold at Trincomalie - - -	710 - -	- - -	- -	710 - -	- -	Sold abroad.
Mr. Lettbridge - - - -	500 - -	639 4 5	- -	139 4 5	350 L. to 400 L.,	valued by Coast Guard officers,
Messrs. Castle - - - -	344 6 6	256 15 10	- -	87 10 8	- -	- -
Mr. Ransome - - - -	550 - -	424 14 9	- -	125 5 3	412 3 -	valued by officers of hull and fixtures, H. M. S. Dædalus.
Mr. M'Gilvray - - - -	225 - -	- - -	- -	225 - -	- -	Sold in Scotland.
Messrs. Castle & Beech - -	6,100 - -	4,522 17 11	- -	1,577 2 1	4,667 - -	- -
Messrs. Shaw & Thomson - -	1,516 - -	552 19 1	- -	963 - 11	{ 1,304 - -	480 L. if for sea service.
Messrs. Bowring & Co. - -	2,600 - -	295 19 3	- -	2,304 - 9	{ 1,135 - -	380 L. if for breaking up.
Mr. Albert de Dax, Monte Video	2,750 - -	- - -	- -	2,750 - -	1,2£0 - -	1,977 - - including spare gear.
Messrs. Castle & Beech - -	3,250 - -	2,602 3 4	- -	647 16 8	- -	Sold abroad.
" ditto - - - -	3,200 - -	3,133 6 9	- -	66 13 3	2,937 - -	- -
" ditto - - - -	3,600 - -	3,189 1 8	- -	410 18 4	3,394 - -	- -
Hop-tai-loon, Hong Kong - -	3,781 10 10	- - -	- -	3,781 10 10	3,565 - -	- -
Mr. Outerbridge, Bermuda - -	300 - -	1,655 6 10	- -	1,355 6 10	- -	Sold abroad.
Capt. M'Killop - - - -	900 - -	483 9 7	- -	416 10 5	1,080 - -	- -
Messrs. Holloway Brothers - -	650 - -	73 13 11	- -	576 6 1	870 - -	- -
Mr. Sargent - - - -	205 - -	412 9 -	- -	207 9 -	- -	hull and fixtures.
Mr. Fryman - - - -	816 - -	512 11 11	- -	303 8 1	- -	- -
Messrs. Marshall - - - -	3,850 - -	3,904 8 3	- -	54 8 3	4,000 - -	- -
Mr. Lambert, Hong Kong - -	1,000 - -	- - -	- -	1,000 - -	- -	Sold abroad.
Messrs. Glover & Co., Yokohama	743 15 -	- - -	- -	743 15 -	- -	Sold abroad.
Mr. Rayden - - - -	5,070 - -	- - -	- -	5,070 - -	3,500 - -	1,050 - -
Mr. Bound, Hong Kong - -	3,163 18 4	- - -	- -	3,163 18 4	- -	Sold abroad.
Mr. Murphy, Bermuda - -	2,180 - -	4,221 5 8	- -	2,041 5 8	- -	Sold abroad.
Sold at Hong Kong - - -	1,258 5 6	- - -	- -	1,258 5 6	- -	Sold abroad.
Messrs. Castle & Beech - -	8,650 - -	3,769 5 6	- -	4,880 14 6	14,764 - -	2,340 - - (for breaking up.)
" ditto - - - -	8,531 - -	- - -	- -	8,531 - -	14,500 - -	2,500 - - (for breaking up.)
" ditto - - - -	7,350 - -	4,427 6 8	- -	2,922 13 4	12,695 - -	2,300 - - (for breaking up.)
" ditto - - - -	6,100 - -	5,108 8 3	- -	991 11 9	12,500 - -	2,516 - - (for breaking up.)
" ditto - - - -	4,142 - -	2,200 8 11	- -	1,941 11 1	9,100 - -	1,700 - - (for breaking up.)
Messrs. Marshall - - - -	7,160 - -	4,749 12 3	- -	2,410 7 9	8,237 - -	3,274 - - (for breaking up.)
" ditto - - - -	6,990 - -	4,994 1 6	- -	1,995 18 6	8,499 - -	4,200 - - (for breaking up.)
" ditto - - - -	6,620 - -	- - -	- -	6,620 - -	8,905 - -	3,274 - - (for breaking up.)

RETURN RELATING TO SHIPS SOLD BY ADMIRALTY

DESCRIPTION.	NAME.	Age	Age	Spare Screw Propellers.		Tons.	Horse Power.	Whether Publicly Advertised by Auction, or whether Sold by Public or Private Tender.
		of Ship.	of Engines.	No.	Weight.			
		Years.	Years.		Tons. cwt. qrs. lbs.			
Screw line-of-battle ship -	Colossus - - -	18 $\frac{3}{4}$	13	1	8 0 0 0	2,590	400	Private tender -
Screw frigate - - -	Euryalus - - -	13 $\frac{1}{2}$	13 $\frac{1}{2}$	1	7 0 0 0	2,371	400	- ditto - - -
Ditto - - -	Impérieuse - - -	14 $\frac{1}{2}$	14 $\frac{1}{2}$	1	6 0 0 0	2,358	360	- ditto - - -
Ditto - - -	Arrogant - - -	19	19	1	6 0 0 0	1,872	360	- ditto - - -
Ditto - - -	Termagant - - -	19 $\frac{1}{2}$	9 $\frac{1}{2}$	1	6 0 0 0	1,547	310	- ditto - - -
Screw sloop - - -	Pelican - - -	6 $\frac{1}{2}$	6 $\frac{1}{2}$	1 spare blade.	0 10 0 0	952	200	- ditto - - -
Screw troop ship - -	Vulcan - - -	18	9	1	7 0 0 0	1,764	400	- ditto - - -
Paddle frigate - - -	Leopard - - -	16 $\frac{1}{2}$	16 $\frac{1}{2}$	-	- - -	1,406	560	Public tender - -
Sailing 5th rate - -	Africaine - - -	39 $\frac{1}{2}$	-	-	- - -	1,173	-	Private tender - -
Sailing surveying vessel -	Saracen - - -	Purchased in Sept. 1862.	-	-	- - -	75	-	- - -
Sailing 5th rate - -	Isis - - -	47 $\frac{1}{2}$	-	-	- - -	1,321	-	- - -
Sailing Sloop - - -	Clinker - - -	53	-	-	- - -	183	-	Private tender - -
Ditto - - -	Linnet - - -	31 $\frac{1}{4}$	-	-	- - -	361	-	Public tender - -
Ditto - - -	Shamrock - - -	51 $\frac{3}{4}$	-	-	- - -	180	-	- ditto - - -
Sailing 5th rate - -	Madagascar - -	44 $\frac{1}{2}$	-	-	- - -	1,167	-	- - -
Ditto - - -	Naiad - - -	70	-	-	- - -	1,020	-	- - -
COAST GUARD VESSELS, &c. :								
Watch vessel - - -	Busy - - -	-	-	-	- - -	-	-	- - -
Cutter - - -	Beresford - - -	-	-	-	- - -	180	-	- - -
	Scout - - -	40	-	-	- - -	24	-	- - -
	Chance - - -	-	-	-	- - -	-	-	- - -
	Good Portent - -	-	-	-	- - -	-	-	- - -
	Neptune - - -	-	-	-	- - -	-	-	- - -
Watch vessel - - -	Princess Augusta	-	-	-	- - -	71	-	Public tender - -
	Royal George - -	-	-	-	- - -	-	-	- - -
Lighter - - -	Ann - - -	83	-	-	- - -	67	-	Public tender - -
Cutter - - -	Chance - - -	32	-	-	- - -	58	-	- - -
Lighter - - -	Deptford - - -	81	-	-	- - -	105	-	- - -
	Shark - - -	-	-	-	- - -	-	-	- - -
Cutter - - -	Wellington - - -	32	-	-	- - -	143	-	Public tender - -
Ditto - - -	Bantry - - -	30	-	-	- - -	27	-	- ditto - - -
Ditto - - -	Hamilton - - -	29	-	-	- - -	59	-	Public auction - -
Two junks - - -	- - -	-	-	-	- - -	-	-	- - -
Watch vessel - - -	Kite - - -	-	-	-	- - -	156	-	- - -
Cutter - - -	King George - -	31	-	-	- - -	36	-	Public auction - -
	Lion - - -	-	-	-	- - -	-	-	- - -
Ditto - - -	Princess Royal -	-	-	-	- - -	-	-	- - -
Ditto - - -	Rose - - -	-	-	-	- - -	-	-	- - -
Watch vessel - - -	Swift - - -	-	-	-	- - -	164	-	- - -
Brig - - -	Vega - - -	Purchased in 1860.	-	-	- - -	304	-	- - -
Watch vessel - - -	Captain Cook - -	-	-	-	- - -	-	-	- - -
	Dove - - -	48	-	-	- - -	-	-	Public tender - -
	Desmond - - -	-	-	-	- - -	-	-	- - -
Cutter - - -	Lady of the Lake	33	-	-	- - -	22	-	Public auction - -
Watch vessel - - -	Richmond - - -	-	-	-	- - -	240	-	Public tender - -
Cutter - - -	Amphitrite - - -	21	-	-	- - -	60	-	- - -
	Betsy - - -	-	-	-	- - -	-	-	- - -
Cutter - - -	Cameleon - - -	32	-	-	- - -	89	-	Public auction - -
Ditto - - -	Despatch - - -	26	-	-	- - -	30	-	- ditto - - -
Ditto - - -	Gertrude - - -	31	-	-	- - -	37	-	- ditto - - -
Ditto - - -	Lady Flora - - -	32	-	-	- - -	21	-	- ditto - - -
Ditto - - -	Neptune - - -	-	-	-	- - -	-	-	- - -
Cutter - - -	Onyx - - -	30	-	-	- - -	36	-	Public auction - -
An old watch vessel at Barking.	- - -	-	-	-	- - -	-	-	- - -
Watch vessel - - -	Ann - - -	28	-	-	- - -	24	-	Public auction - -
	Squirrel - - -	-	-	-	- - -	-	-	- - -

To whom Sold.	Gross Amount of Money obtained for each Ship.	Amount Paid to each Purchaser by the Admiralty in Repurchasing Stores Returned bearing A.	Amount to be Paid to each Purchaser by the Admiralty in Repurchasing Stores Returned bearing A.	Net Amount obtained for each Ship after abating Amount Paid for Stores Returned.	Estimated Value, as reported by Dockyard Officers.	
					Hull.	Machinery.
Messrs. Castle & Beach - -	£. s. d. 6,865 - -	£. s. d. 5,983 - 6	£. s. d. - - -	£. s. d. 881 19 6	£. s. d. 9,300 - -	£. s. d. 1,300 - - (for breaking up.)
- ditto - ditto - -	6,450 - -	1,096 13 4	- - -	5,353 6 8	5,300 - -	1,300 - - (for breaking up.)
- ditto - ditto - -	6,925 - -	4,719 - 9	- - -	2,205 19 3	5,300 - -	1,150 - - (for breaking up.)
- ditto - ditto - -	6,360 - -	- - -	- - -	6,360 - -	3,980 - -	1,150 - - (for breaking up.)
- ditto - ditto - -	5,400 - -	1,057 3 3	- - -	4,342 16 9	3,100 - -	1,100 - - (for breaking up.)
Messrs. McArthur & Co. - -	3,500 - -	- - -	- - -	3,500 - -	2,800 - -	2,000 - - (for sale.)
Mr. Marks - - -	5,500 - -	- - -	- - -	5,500 - -	2,300 - -	700 - - (for breaking up.)
Messrs. Marshall - - -	6,005 - -	2,986 11 2	- - -	3,018 8 10	5,500 l. hull and engines, valued by Con- troller's Department	
Trinity House - - -	2,050 - -	- - -	- - -	2,050 - -	8,883 - -	10,000 - - (if sold for sea service.)
Sold at Singapore - - -	594 7 3	- - -	- - -	594 7 3	3,453 - -	2,800 - - (if sold for breaking up.)
Mr. Heddle, Sierra Leone - -	1,098 7 -	- - -	- - -	1,098 7 -	2,050 - -	- -
Mr. Shrubsole - - -	259 - -	225 13 4	- - -	33 6 8	- -	Sold abroad.
Messrs. Marshall - - -	605 - -	641 12 1	- - -	36 12 1	- -	Sold abroad.
- ditto - - -	360 - -	295 14 3	- - -	64 5 9	500 - -	- -
- - -	2,551 19 -	- - -	- - -	2,551 19 -	hull, fixtures, and stores.	- -
- - -	1,992 - -	- - -	- - -	1,992 - -	250 - -	- -
- - -	52 5 6	- - -	- - -	52 5 6	- -	- -
T. Madams - - -	90 - -	- - -	- - -	90 - -	- -	- -
Messrs. Ransome - - -	115 - -	- - -	- - -	115 - -	- -	- -
- - -	500 - -	- - -	- - -	500 - -	- -	- -
- - -	40 14 9	- - -	- - -	40 14 9	- -	- -
- - -	1,100 - -	- - -	- - -	1,100 - -	- -	- -
- - -	62 - -	- - -	- - -	62 - -	- -	- -
- - -	188 5 6	210 6 10	- - -	22 1 4	- -	- -
Messrs. Castle & Beech - -	161 - -	- - -	- - -	161 - -	110 - -	- -
Mr. Sargent - - -	70 - -	- - -	- - -	70 - -	50 l. to 55 l.	- -
- - -	10 15 -	- - -	- - -	10 15 -	- -	- -
- - -	71 9 2	- - -	- - -	71 9 2	- -	- -
Mr. J. J. Kelly - - -	120 - -	- - -	- - -	120 - -	- -	- -
Mr. McSwiney - - -	70 - -	- - -	- - -	70 - -	- -	- -
Messrs. J. & E. Marshall - -	136 15 -	- - -	- - -	136 15 -	- -	- -
- - -	191 5 -	- - -	- - -	191 5 -	- -	- -
Mr. T. Sargent - - -	110 - -	- - -	- - -	110 - -	- -	- -
- - -	115 - -	178 17 1	- - -	115 - -	- -	- -
- - -	279 17 1	- - -	- - -	101 - -	- -	- -
- - -	125 4 6	- - -	- - -	125 4 6	- -	- -
- - -	103 5 -	- - -	- - -	103 5 -	- -	- -
- - -	330 1 6	- - -	- - -	330 1 6	- -	- -
Sold at Johanna - - -	86 7 4	- - -	- - -	86 7 4	- -	- -
- - -	160 - -	- - -	- - -	160 - -	- -	- -
Messrs. Castle & Son - - -	85 - -	- - -	- - -	85 - -	- -	- -
- - -	302 10 -	- - -	- - -	302 10 -	- -	- -
Messrs. Cribb & Co. - - -	136 15 -	- - -	- - -	136 15 -	- -	- -
Mr. R. Tracy - - -	245 - -	- - -	- - -	53 15 9	250 l., valued by Coast Guard Office.	- -
- - -	129 13 9	- - -	- - -	129 13 9	- -	- -
- - -	23 16 -	191 4 3	- - -	23 16 -	- -	- -
- - -	356 4 9	- - -	- - -	356 4 9	- -	- -
- - -	169 5 3	- - -	- - -	169 5 3	- -	- -
- - -	229 12 3	- - -	- - -	229 12 3	- -	- -
- - -	76 13 7	- - -	- - -	76 13 7	- -	- -
- - -	40 5 9	- - -	- - -	40 5 9	- -	- -
- - -	169 5 3	- - -	- - -	169 5 3	- -	- -
- - -	167 - -	- - -	- - -	167 - -	- -	- -
- - -	76 13 8	- - -	- - -	76 13 8	- -	- -
- - -	127 17 10	- - -	- - -	127 17 10	- -	- -

* *Mem.*—As regards the sums inserted as the amounts paid for stores returned, in some recent cases additions or alterations in amounts may probably occur when the whole quantity of the stores has been returned.

The amounts shown in *Italics* are credits.

(D. S. 496—67.)

Messrs. *Castle & Beech*, to the Controller of the Navy.Baltic Wharf, Millbank, S. W., London,
19 January 1867.

Sir,

WE respectfully beg to submit, for their Lordships' consideration, an offer (annexed) for the purchase of all or any of those ships which are reported as being intended for sale, or to be broken up.

The marked copper and metal to be returned to the Admiralty at the usual market prices, and the iron ballast (if any) and the harbour stores to be removed.

We have, &c.

To Admiral R. S. Robinson,
Admiralty, Whitehall.(signed) *Henry Castle & Sons.*
Wm. P. Beech.

Ship's Name.	Amount Offered.	Ship's Name.	Amount Offered.
	£.		£.
Agamemnon - - - -	8,756	Exmouth - - - -	7,500
Algiers - - - -	9,550	Forth - - - -	3,000
Cæsar - - - -	7,117	Seahorse - - - -	3,000
Colossus - - - -	6,275	St. Jean D'Acre - - - -	9,000
Diadem - - - -	8,207	James Watt - - - -	9,250
Hannibal - - - -	8,840	London - - - -	7,000
Imperieuse - - - -	6,275	Leopard - - - -	4,360
Marlboro' - - - -	12,100	Majestic - - - -	6,615
Nelson - - - -	7,840	Nile - - - -	7,055
Neptune - - - -	8,000		
Prince Regent - - - -	7,905	Orlando { The boilers of this	7,000
Queen - - - -	9,100	ship have been re-	
Termagant - - - -	4,000	moved, also the	
Victor Emmanuel - - - -	8,850	copper sheathing -	
Albion - - - -	7,700	Renown - - - -	10,000
Brunswick - - - -	6,330	Royal William - - - -	8,000
Buzzard - - - -	3,000	Sans Pareil - - - -	6,010
Centurion - - - -	6,475		
Defiance - - - -	11,000	32 Ships - TOTAL - £.	235,110

N. B.—These vessels are all steamers, and this offer includes the purchase of the machinery now on board of each ship.

(signed) *Henry Castle & Sons.*
*Wm. P. Beech.*The Controller of the Navy to Messrs. *Castle & Beech*.

(No. 366.)

Gentlemen,

Admiralty, 22 January 1867.

I BEG leave to inform you, that your proposal has been received, and will be laid before their Lordships for their consideration; before, however, doing so, I shall be glad to know what price you would give for, say the "Hannibal," if sold as she stands, and without any restriction as to breaking up or returning old copper, metal, &c., &c., whatever stores she may have on board going with the ship, the Admiralty incurring no expense whatever upon the ship, but delivering her over to the purchasers just as she stands.

I am, &c.

Messrs. *Castle & Beech*,
London, S. W.(signed) *Rob. Spencer Robinson.*

(D. S. 497—67.)

Messrs. *Castle & Beech* to the Controller of the Navy.Baltic Wharf, Millbank, S. W., London,
23 January 1867.

Sir,

WITH reference to our offer of the 19th instant, and in reply to your letter of the 22nd, we beg to inform you, that if the "*Hannibal*" be sold as she stands, including whatever stores she may have on board, and without any restriction as to returning the old copper and metal, we could give 500 *l.* in addition to the sum offered, and the same amount extra for all the ships excepting the "*Leopard*," "*Buzzard*," "*Seahorse*," and "*Forth*," the extra value of these four ships would be 250 *l.* each. With these additions, the total offer for the 32 ships amounts to 250,110 *l.*

We beg to observe, that it would be much more satisfactory to have the ships delivered over as described in your letter; we have, therefore, given the full value for what is the custom of the service to take out.

We have, &c.

To Admiral R. S. Robinson,
Admiralty, Whitehall.(signed) *Henry Castle & Sons.*
Wm. P. Beech.

 Controller's Submission to Board.

(No. 414.)

Admiralty, 25 January 1867.

THE object of selling old ships at this time is twofold. One, to extinguish the heavy charge annually incurred for maintenance, in wages to shipkeepers, stokers, and engineers, as well as the cost of wages and materials expended in keeping them in repair, which I estimate amounts, on an average, to 1,000 *l.* per annum for each line-of-battle ship. The other is to obtain, by their sale, a certain sum of money to be paid into the Exchequer, which shall be a set off against an increase in the Navy Estimates.

Any proposals, therefore, which involve an outlay upon the ships, or which would simply transfer so much material to the Storekeeper General's charge, are inadmissible, affording no assistance in the direction wanted.

Breaking up ships, therefore, either in the dockyards or by contract, will not meet the exigency of the case, though it is most desirable to resort to one or other of those proceedings for the disposal of small ships, which, when opened out for repair, are found not to be worth the expense.

The only way to increase the receipts of the Exchequer is to sell such ships as are obsolete out-and-out as they stand, removing nothing, incurring no expense for labour whatever upon them, and accepting the best terms that can be obtained.

I submit that the offer of Messrs. *Castle & Beech*, herewith, is worthy of consideration, but requires amending in many particulars; and, as I do not think the highest price obtainable has been offered by those gentlemen, I propose the following plan for their Lordships' consideration and direction.

Messrs. *Castle & Beech* should be informed, in answer to their two letters enclosed, that their Lordships are willing to entertain offers for the ships in the following list, that they will sell the ships exactly as they stand, that they will not require the copper and metal, or other articles marked with the broad arrow to be returned into any dockyard, but that the purchasers will be at liberty to sell these articles to any firm with whom they habitually deal, giving and receiving such certificates as may be necessary, and that they will not incur any expense whatsoever respecting the ships.

List of ships which their Lordships are willing to sell on the above terms, on receiving a fair offer :—

Frigates :					Line-of-Battle Ships :				
Chesapeake	-	-	-	Chatham.	Cressy	-	-	-	Sheerness.
Euryalus	-	-	-	Portsmouth.	Collingwood	-	-	-	Sheerness.
Imperieuse	-	-	-	Portsmouth.	Orion	-	-	-	Sheerness.
Arrogant	-	-	-	Portsmouth.	Colossus	-	-	-	Portsmouth.
Termagant	-	-	-	Portsmouth.	Majestic	-	-	-	Devonport.
Leander	-	-	-	Sheerness.	Brunswick	-	-	-	Devonport.
					Sans Pareil	-	-	-	Devonport.

I further submit that Messrs. White, of Cowes, and Messrs. Marshall, of Devonport, should also be written to in the same terms as Messrs. Castle & Beech, and be asked if they feel disposed to make a fair offer for the purchase of all or any of these ships under the conditions already mentioned.

Their Lordships will understand that this proposal is only preliminary to dealing more extensively with a larger number of obsolete ships.

(signed) *Robert Spencer Robinson.*

(D. S. 1085—67.)

ADMIRALTY MINUTE.

26 January 1867.

TRANSMITTED to Storekeeper General for any observations. In this proposed sale of ships it is intended the copper and mixed metal should be sold with the ship, taking bond from the purchasers that no copper or mixed metal shall be sold, but that such purchaser, or his agent, may smelt the same for his own use.

(D. S. 1086—67.)

Storekeeper General's Report to the Board.

(No. 47.)

8 February 1867.

WITH reference to their Lordships' Minute of the 26th ultimo, relative to the proposed sale of the 13 ships named in the margin, I beg leave to submit the following observations :—

Assuming that all ships of the line and large frigates (not armour-plated) not now available without repair for future service are obsolete, and that the decision has been adopted that it will be advantageous to dispose of them on any terms that can be obtained for them, it appears desirable to introduce no conditions calculated to diminish the proceeds of sales, or practically to annul the Naval Store Act, or to deprive Her Majesty's service of articles of naval equipment now on board the ships proposed to be sold, which, if returned into store, would be useful hereafter, and the cost of which will certainly not be covered by the nominal prices received for the ships, including serviceable stores on board of them at the time of sale.

Prices have been offered for five of the ships in the list of 13 proposed to be sold immediately.

The approximate cost of those five ships, including steam machinery, according to the official accounts, is 513,474 *l*.

The total amount offered for them is 31,505 *l*., or about 1-16th of their original cost.

The reason is not stated for which it is deemed advisable not to require the return of marked copper and mixed metal, when removed from the ships sold, and there is none for the conclusion that the omission of that usual stipulation

Chesapeake.
Euryalus.
Imperieuse.
Arrogant.
Termagant.
Leander.
Cressy.
Collingwood.
Orion.
Colossus.
Majestic.
Brunswick.
Sans Pareil.

lation from the conditions of sale of ships out of the navy would be an inducement to purchasers to pay more money for the ships.

Any condition obliging purchasers to dispose of the ships in any other manner than may be most convenient to themselves are disadvantageous to the Government.

They should be left at liberty to resell the ships, or apply them to any purpose for which they can be used, without any other restriction than the obligation to return any marked copper or mixed metal when removed from them to the nearest dockyard, where it will be received and paid for, at the price specified in the condition of sale.

Ships have been sold out of the navy under that stipulation, and been employed at sea for long periods of years afterwards.

The latest instance appears to be that of the "Weasel," built at Chatham in the year 1822, and sold on the 30th April 1844.

She was disposed of by the purchasers to other persons, and became a whaler, and was registered in London in the name of the "Adventure."

Some of the copper bolts were returned in the year 1863, the ship having then been under repair at Bristol, and in use for 19 years after she had been sold out of the navy. Possibly she is still in use as a sea-going ship.

The proposed bond to be taken from the purchasers of the ships now intended to be sold, that no copper or mixed metal taken from them shall be sold, but that the purchasers or their agents may smelt them for their own use, would practically restrict their mode of disposing of the ships.

Other persons ready to buy them from the original purchasers might naturally object to come under the obligation of his bond.

It would have a depreciating effect on the selling price, and could be applicable only to a sale in effect binding the original purchaser to break up and not to sell the ship.

The pecuniary interest of the Government is promoted by sale without that restriction on the purchaser; and it is believed that the effect of the guarantee of the Admiralty to receive and pay at the prices specified in the conditions of sale, for the old copper and mixed metal, whenever returned to a dockyard, however long the period of years during which the ship may have been in use after being sold out of the navy, is beneficial, rather than otherwise, to the Government.

The existence of the Naval Store Act implies the necessity for special enactment for the protection of the public property.

The sale of ships under conditions admitting of the subsequent sale of marked copper and mixed metal would make it more difficult than ever to obtain convictions for illegal possession, when the practice of unreserved sale by the Admiralty was proved to have been adopted.

The sale of seven ships-of-the-line and six large frigates can, under present circumstances, only be effected at nominal prices, compared with their original cost, which is stated, as an approximate account, to have been 1,313,223 £., including the steam machinery.

No amount of money approaching the real value of these ships, in relation to their cost, will be forthcoming under any conditions of sale.

It will hardly be expedient to invalidate the Naval Store Act on the uncertain speculation that better terms can be obtained by the unreserved sale of the marked copper and mixed metal on conditions the efficiency of which must practically depend upon the ships being broken up by the original purchasers.

That restriction on their liberty to dispose of them in any other way, would probably counterbalance any possible advantage to be derived from their liberty to sell the copper and mixed metal to other persons than the Admiralty, while the fact that the Admiralty had unreservedly sold large quantities of those stores, would be a permanent pretext in future against convictions under the Naval Store Act, for illegal possession of them, at the same time that they are the most liable of all naval stores to be embezzled.

For these reasons, it is submitted that no serviceable stores of use in the navy, and not fixtures, should be sold with the ships; and that the conditions of sale should provide as usual for the return at any future time of the marked copper and mixed metal to the dockyards.

(signed) *R. Dundas,*
Storekeeper General of the Navy.

(D. S. 1087—67.)

ADMIRALTY MINUTE.

8 February 1867.

THE very stringent powers given to the Department by the last Naval Stores Act, were granted entirely on the understanding that naval marked stores were not sold.

I think the sale of these vessels "out-and-out," and without the usual condition as to the return of the copper and metal, will be a breach of faith with the House of Commons.

I think further, that all attempts to obtain convictions of marine store dealers will in future fail, and that all the steps which have been now for some years taken to diminish the robberies of dockyard stores will prove useless.

I suggest that before this order goes forward, the question of the results to be expected, may be referred to the Storekeeper General and Sir Richard Mayne.

(signed) W. G. R.

 Controller's Submission to Board.

(No. 865.)

Admiralty, 18 February 1867.

WITH reference to the Controller's submission of the 25th January last, relative to the sale of old ships, and to the Storekeeper General's remarks upon it, I beg leave to offer a few observations, which may, I hope, help to place the subject in the clearest possible light before their Lordships.

I beg them to believe that if I am obliged, for the purpose of putting this important matter before them in all its bearings, somewhat to criticise the storekeeper General's arguments, I do so with the highest respect for his great talents, and for the long and valuable services he has rendered at the head of a great department.

I must recapitulate what several of my submissions, which do not appear to have been seen by the Storekeeper General, have made familiar to their Lordships, viz., that the object of the sale of ships is twofold :—

1st. The saving of annual expense of maintenance.

2nd. The relieving the Treasury from a portion of the charge upon it for naval construction, by handing over to the Exchequer the largest amount that can be procured by the sale of these ships.

In my former submissions (it was therefore unnecessary to repeat it in the submission of 25th January) I showed distinctly, that although there were several ways of effecting the first object, there was but one way of effecting the second ; and especially that compelling the purchaser of old ships to sell to the Storekeeper General the old metal proceeding from those ships, did not result in paying in to the Treasury any money which could be used as a set-off against expenditure on the construction of ships, and this latter object was what we have been particularly called upon to aim at.

I am quite aware of what is to be said on the ultimate balance of account that may be come to, between the Treasury and the Storekeeper General's vote, if the copper is sold to him, but this arrangement does not meet the urgent want of a large payment into the Treasury during the ensuing financial year ; and the argument of the Storekeeper General throughout is founded on a complete disregard of this necessity.

When the Storekeeper General says that "there is no reason for the conclusion that the omission of that usual stipulation from the conditions of sales of ships, would be an inducement to purchasers to pay more money for the ships," he is clearly mistaken, for the very papers that accompanied my submission of the 25th January, showed that the first party in the field augmented their offer at once by 500 *l.* on each of the larger ships, as soon as they understood that the conditions might be relaxed, and this was by no means a final offer ; the same remark applies to the sale of old stores or fixtures in the ship, and it may further

further be observed that the quantity of old and obsolete stores procured by the breaking up of ships is very large already, and is not wanted in the dockyards.

The certificate or bond which it is proposed to exact from the purchaser, that he will only dispose of the copper, &c., in a certain way is a practical restriction, which has its weight as all restrictions necessarily have; but the obligation to sell at fixed prices to the nearest dockyard is as injurious, if not more so, to the interests of the purchaser. Against the theory that this obligation to return old metal at some future time to a dockyard, operates beneficially to the Admiralty in procuring a higher price for old ships, I place the actual fact I have just quoted.

Unless I am quite misinformed, the Naval Store Act would not stand in the way of an arrangement by which the purchaser bound himself to sell the old metal to a certain firm under an engagement from that firm to melt the metal. I cannot attach any serious weight to these objections; and if they were of as much importance as the Storekeeper General supposes, an amendment to the Store Act would remove this difficulty out of the way.

The other great point of the Storekeeper General's argument is the very low price that these ships will sell for as compared with their cost.

Here it is necessary not to confound *cost* with *value*.

The value of these ships may bear no proportion to their cost, and yet it may be sound economy to realise that value. The value of that which you do not want can only be ascertained by the price others will give for it. The retaining in one's possession what is not wanted, what is costly to retain, and what cannot be used without a large additional expenditure of money upon the article itself, is certainly uneconomical.

This is an exact description of the case of these old obsolete ships.

It is not proposed to sell any but either what are quite unfit for modern warfare, or are in such an advanced state of decay as to make them thoroughly useless. When those which it is thought right to dispose of are gone, a great number will still remain; but to keep up in our harbours long lines of ships which no one will venture to repair on account of the expense, or to fit out for sea on account of their unfitness for warfare, because there are certain fancied difficulties in the way of realising their value, because nothing approaching the original cost of such ships can be obtained, is unbecoming to a vigorous naval administration.

The case can be stated in a few lines; how can a mass of costly but useless material be converted into a new and much wanted engine of war?

The answer which must occur to everyone is, "Dispose of what is useless on the best terms you can procure, and apply the proceeds towards buying what is not only useful but of paramount necessity."

I am not the least deterred from believing in the soundness of the suggestions I have made by Mr. Romaine's very forcible remarks on the difficulties the Naval Store Act puts in the way of what I have called an unrestricted sale, but which in reality does restrict in a great measure the sale of old metal.

If the purchasers of this metal agree to melt it, and it has been understood that the sellers and buyers will give security that this shall be done, and the Admiralty need deal only with firms on whom it can rely, their Lordships need not, I think, anticipate any insuperable difficulties in using this Act for the conviction of marine store dealers who shall have pilfered in small quantities from their dockyards.

At any rate, I cannot admit that an Act the intention of which was to protect naval property, must of necessity be an obstacle to the advantageous disposal of that property, or that, if some difficulties exist, they cannot be removed.

The work has to be done, and I feel sure that if their Lordships are of that opinion, and act upon it with energy, there is a prospect of realising a large amount of money, of saving a considerable annual outlay, and so converting decaying and useless materials into the modern engines of war which we so much require.

(signed) *Rob. Spencer Robinson.*

(D. S. 2556—67.)

ADMIRALTY ORDER.

Controller of the Navy.

Admiralty, 8 February 1867.

Chesapeake.
Euryalus.
Imperieuse.
Arrogant.
Termagant.
Leander.
Cressy.
Collingwood.
Orion.
Colossus.
Majestic.
Brunswick.
Sans Pareil.

MY Lords having had under consideration your report of the 25th ultimo, as to the disposal of old ships, I am to acquaint you that they approve of your proposition to sell out-and-out the ships named in the margin, without the usual condition as to the return of copper and metal, provided fair and reasonable offers can be obtained; and you are to communicate with the parties named by you, and take such steps as you may deem most advisable for obtaining the best terms, reporting the offers that may be obtained for their Lordships' approval or otherwise.

By command of their Lordships,
(signed) *W. G. Romaine.*

The Controller of the Navy to Messrs. *J. & E. Marshall.*

(No. 634.)

Gentlemen,

Admiralty, 7 February 1867.

I BEG leave to inform you that their Lordships have decided to sell the ships named in the enclosed list, with their engines, and what they have at present on board, exactly as they stand.

Their Lordships will not require the copper and metal, or other articles marked with the broad arrow, to be returned into any dockyard; but you will be at liberty to sell these articles to any firm with whom you habitually deal, giving and receiving such certificates as may be necessary.

If therefore you feel disposed to purchase, on these conditions, any or all of these ships, I request that you will take such steps as will enable you to state to me for their Lordships' information what sum you will give for one or more of them.

I am, &c.

Messrs. J. & E. Marshall, (signed) *Rob. Spencer Robinson.*
Admiralty Shipbreaking Yard, Plymouth.

List of Ships for Sale.

Chesapeake at Chatham.	Cressy at Sheerness.
Euryalus „ Portsmouth.	Collingwood at Sheerness.
Imperieuse „ Portsmouth.	Orion „ Sheerness.
Arrogant „ Portsmouth.	Colossus „ Portsmouth.
Termagant „ Portsmouth.	Majestic „ Devonport.
Leander „ Sheerness.	Brunswick „ Devonport.
	Sans Pareil „ Devonport.

(No. 635.)

7 February 1867.

A LETTER and list sent to Mr. White exactly similar to the foregoing No. 634 of this date.

(No. 636.)

7 February 1867.

A LETTER and list sent to Messrs. Castle and Beech exactly similar to the foregoing, No. 634 of this date.

(D. S. 941—67.)

Messrs. *J. and E. Marshall* to the Controller of the Navy.

(D. S. No. 634.)

Admiralty Shipbreaking Yard, Plymouth,
11 February 1867.

Sir,

IN answer to your letter of the 7th instant, respecting the old ships for sale, we have surveyed those at Devonport, leave to day for those at the eastern yards, and in a few days will do ourselves the pleasure of submitting an offer for them.

We are, &c.

(signed) *John and Edred Marshall.*

To the Controller of the Navy,
Admiralty, London.

(D. S. 967—67.)

Mr. *J. Marks* to the Controller of the Navy.

Point House, The Grove, Blackheath,
13 February 1867.

Sir,

UNDERSTANDING that it is the intention of their Lordships to dispose of a number of old wooden steamships for breaking up only, may I respectfully beg to be allowed to offer for them, and if so, would you allow me to have a list of the ships, stating the ports they are lying at, and under what conditions they will be sold.

I am, &c.

(signed) *J. Marks.*

To the Controller of the Navy,
Admiralty, Whitehall.

(No. 759.)

13 February 1867.

A LETTER and list sent to Mr. *J. Marks* (in reply to his letter of same date as above) exactly similar to the foregoing, No. 634, of 7th February 1867.

(D. S. 984—67.)

Mr. *John White* to the Controller of the Navy.

Sir,

Medina Docks, Cowes, 13 February.

IN answer to your favour, initialed D.S. No. 635, I am obliged by the offer to purchase Her Majesty's ships therein mentioned, which, after mature deliberation, I feel compelled respectfully to decline.

I remain, &c.

(signed) *John White.*

To the Controller of the Navy,
Whitehall.

(D. S. 1028—67.)

Messrs. *Pollock & Brown* to the Storekeeper General

Sir,

Iron and Metal Merchants, American Wharf,
Southampton, 12 February 1867.

HAVING been informed that there are a number of ships in Portsmouth Dockyard to be sold out of the service, would you kindly place us on the list of those who may be allowed to estimate. Our reference is the National Provincial Bank, Southampton.

To the Storekeeper General,
Somerset House, London.

We are, &c.
(signed) *Pollock & Brown.*

(No. 813.)

15 February 1867.

A LETTER and list sent by the Controller to Messrs. Pollock and Brown (in reply to their letter of 12th instant), exactly similar to the foregoing, No. 634 of 7th February 1867.

(D. S. 1277—67.)

Messrs. *J. and E. Marshall* to the Controller of the Navy.

Admiralty Shipbreaking Yard, Plymouth.

Sir,

16 February 1867.

IN reply to your letter of the 7th instant, respecting old ships for sale, we now beg to submit an offer for the same, as follows :—

For those at Devonport :								£.
Majestic	-	-	-	-	-	-	-	7,160
Brunswick	-	-	-	-	-	-	-	6,990
Sans Pareil	-	-	-	-	-	-	-	6,620
For those at Portsmouth :								
Imperieuse	-	-	-	-	-	-	-	6,205
Termagant	-	-	-	-	-	-	-	4,400
Colossus	-	-	-	-	-	-	-	6,310
Euryalus	-	-	-	-	-	-	-	5,650
Arrogant	-	-	-	-	-	-	-	5,520
For those at Sheerness and Chatham :								
Chesapeake	-	-	-	-	-	-	-	1,500
Leander	-	-	-	-	-	-	-	6,900
Collingwood	-	-	-	-	-	-	-	8,200
Orion	-	-	-	-	-	-	-	8,400
Cressy	-	-	-	-	-	-	-	5,500

If this offer be accepted for any or all of the above-named ships we are willing to pay a deposit of 500 *l.* per ship and the balance before delivery, one ship to be removed at once, and to follow with one every three months.

We are, &c.
(signed) *John and Edred Marshall.*

(D. S. 1117-67.)

Messrs. *Pollock & Brown* to the Controller of the Navy.

Sir,

American Wharf, Southampton,
18 February 1867.

WE beg leave to acknowledge the receipt of your favour of 15th instant, (Initial Letter, D. S., No. 813). As soon as we have taken the necessary steps to examine the ships, will send you our estimates.

To the Controller of the Navy,
Somerset House, London.

We are, &c.
(signed) *Pollock & Brown.*

(D. S. 1114-67.)

Mr. *J. Marks* to the Controller of the Navy.

Sir,

Point House, The Grove, Blackheath,
18 February 1867.

IN answer to your letter of the 13th instant, I beg to hand you my prices for the ships therein mentioned.

Frigates:					Line-of battle Ships:				
Chesapeake	-	-	-	- £. 1,390	Cressy	-	-	-	- £. 5,300
Euryalus	-	-	-	- 5,320	Collingwood	-	-	-	- 7,020
Imperieuse	-	-	-	- 5,750	Orion	-	-	-	- 7,800
Arrogant	-	-	-	- 5,100	Colossus	-	-	-	- 6,005
Termagant	-	-	-	- 4,310	Majestic	-	-	-	- 6,300
Leander	-	-	-	- 6,390	Brunswick	-	-	-	- 6,200
					Sans Pareil	-	-	-	- 6,460

The Controller of the Navy,
&c. &c. &c.

I am, &c.
(signed) *J. Marks.*

(D. S. 1280-67.)

Messrs. *Castle & Beech* to the Controller of the Navy.

Sir,

Baltic Wharf, Millbank, S.W., London,
19 February 1867.

WITH reference to your letter of the 7th instant (D. S. 636), enclosing a list of ships for sale, we beg to submit for their Lordship's consideration the annexed offer for the purchase of those vessels upon the conditions contained in the correspondence above referred to. We beg leave to mention that the copper and iron markets are now very low, and without any prospect of improvement, and that with each of these ships the buyers must of necessity incur a considerable outlay beyond the purchase-money for transporting, rent, labour, tools, and many other expenses.

To Admiral R. S. Robinson,
Admiralty, Whitehall.

We are, &c.
(signed) *Henry Castle & Sons.*
William P. Beech.

PROPOSED TERMS.

Should their lordships entertain our offer, we propose to pay 10 per cent. deposit on the whole, pay for and remove three ships within one month; the remainder of the ships to be paid for and removed within twelve months.

(signed) *Henry Castle & Sons.*
William P. Beech.

TENDER FOR PURCHASE OF OLD SHIPS.

"Orion," "Collingwood," "Leander," "Cressy," and "Chesapeake," at Sheerness, the sum of 34,773 *l*. This offer includes the purchase of the machinery, boilers, &c., of the Chesapeake, also the boilers and connections of the Cressy, all of which are stored in the dockyard, Sheerness. The Chesapeake has not any copper sheathings, is completely stripped, and *many copper fastenings removed*.

"Colossus," "Termagant," "Euryalus," "Imperieuse," and "Arrogant," at Portsmouth, the sum of 30,010 *l*.

"Majestic," "Brunswick," and "Sans Pareil," at Devonport, the sum of 20,050 *l*.

(signed) *Henry Castle & Sons.*
William P. Beech.

N.B.—Pending a reply to this tender, it would not be competent for us to enter into any other engagements; we therefore beg the favour of their lordships' early consideration.

(signed) *Henry Castle & Sons.*
William P. Beech.

(D. S. 1210-67.)

Messrs. *Pollock & Brown* to the Controller of the Navy.

American Wharf, Southampton,
21 February 1867.

Sir,

As we have not yet examined all the ships contained in your list, would you kindly inform us the latest date you will receive tenders.

To the Controller of the Navy,
Somerset House, London.

We are, &c.
(signed) *Pollock & Brown.*

The Controller of the Navy to Messrs. *Pollock & Brown*.

(No. 977.)

Gentlemen,

Admiralty, 22 February 1867.

I BEG leave to inform you, with reference to your letter of the 21st instant, that all the tenders for the ships referred to in my letter of the 15th instant have been received, with the exception of yours, and that no tender can be received after Tuesday next, the 26th instant.

Messrs. *Pollock & Brown*,
American Wharf, Southampton.

I am, &c.
(signed) *Rob. Spencer Robinson.*

(D. S. 1278-67.)

Messrs. *J. and E. Marshall* to the Controller of the Navy.7, Vauxhall-street and Deadman's Bay,
Plymouth, 22 February 1867.

Sir,

WE most respectfully solicit, at your early convenience, an answer respecting our offer for "old ships" for sale, in accordance with your letter of the 7th instant; it being of great importance to us, as the last ship ordered to be broken is nearly completed, and will be the cause of a great number of our men being thrown out of work.

We are, &c.

To the Controller of the Navy, (signed) *John and Edred Marshall.*
Whitehall.

The Controller of the Navy to Messrs. *J. and E. Marshall.*

(No. 998½.)

Gentlemen,

Admiralty, 23 February 1867.

I BEG leave to acknowledge the receipt of your letter of yesterday's date relative to your offer for the purchase of "old ships," and to inform you that an answer will be sent as soon as possible.

I am, &c.

Messrs. Marshall, Plymouth. (signed) *Rob. Spencer Robinson.*

(D. S. 1311-67.)

Messrs. *Pollock & Brown* to the Controller of the Navy.American Wharf, Southampton,
25 February 1867.

Sir,

WE beg leave to offer you for Her Majesty's ship "Colossus," now lying at Portsmouth, the sum of 5,150 *l.*, and for Her Majesty's ship "Euryalus," 4,175 *l.*; the other ships we have not had time to examine. Hoping one or both of these tenders may meet your approbation,

We are, &c.

(signed) *Pollock & Brown.*

DOCKYARD REPORTS of the Value of Ships for Sale and Breaking-up.

Controller's Letter to Chatham.

(D. S. No. 830.)

Admiralty, 16 February 1867.

THE captain superintendent at Chatham is requested to direct the officers to forward a statement of the value for sale and for breaking-up of the hull, and of the machinery of the "Chesapeake."

(signed) *Rob. Spencer Robinson.*

On the same day letters calling for similar information were sent by the Controller—

To Sheerness, respecting the "Leander," "Cressy," "Collingwood," and "Orion";

To Portsmouth, respecting the "Euryalus," "Imperieuse," "Arrogant," "Termagant," and "Colossus"; and

To Devonport, respecting the "Majestic," "Brunswick," and "Sans Pareil."

“Chesapeake.”—Value of Hull.

(D. S. 1298-67.)

Sir,

Chatham Yard, 25 February 1867.

IN compliance with your minute on the letter of the Controller of the Navy, 16th inst. D.S. 830, we beg to report that the value of the hull of the “Chesapeake,” for sale, or for breaking-up, is 9,100*l*.

The machinery of the ship having been taken out, the hull opened up for survey, and the knee of the head, &c., unbolted and removed, places the ship in such a state that her value for sale would not exceed that for breaking-up.

The machinery of the “Chesapeake” is at Sheerness yard, and a copy of the Controller’s minute of the 16th instant has been transmitted for the information of the officers.

We are, &c.,

(signed) *P. Thornton*, Master Shipwright.
R. Dawson, Assistant Master Shipwright.

Forwarded,

(signed) *Wm. Houston Stewart*, Captain Superintendent.

(D. S. 1360—67.)

“Chesapeake.”—Value of Machinery.

Sir,

Chatham Yard, 25 February 1867.

WITH reference to the Controller of the Navy’s minutes, dated 16th and 23rd instant, we beg to report that the engines of the “Chesapeake” are at Sheerness, and submit that the officers of that yard be called upon to furnish the information required by the Controller’s memorandum of the 16th, copy of which is enclosed.

We have, &c.,

(signed) *T. P. Baker*, Chief Engineer,
William Eames, Assistant Engineer.

The Captain Superintendent.

25 February. Forwarded to the Captain Superintendent of Sheerness Yard, requesting he will be pleased to cause compliance herewith.

(signed) *W. H. Stewart*,
Capt. Supt.

Sheerness Yard,
25 February 1867.

I beg to report, that the following is the information requested:

Estimated value of the machinery, &c. for further service (without the crank shaft, sent to “Urgent”) - - -	£. 11,000
Estimated value for breaking-up	1,700

(signed) *G. Blaxland*,
Chief Engineer.

(D. S. 1188-67.)

“Leander,” “Cressy,” “Collingwood,” and “Orion,”—Value of.

Sir,

Sheerness Yard, 21 February 1867.

WITH reference to Controller of the Navy’s order of the 16th instant, D.S. 831, and your Minute thereon, we beg to report, that the value of the hull and machinery

machinery of the "Leander," "Cressy," "Collingwood," and "Orion," for sale and for breaking-up, is as follows :

Ship's Name.	Hull		Machinery	
	For Sale.	For Breaking-up.	For Sale.	For Breaking-up.
	£.	£.	£.	£.
Leander - - - -	28,759	12,695	8,000	2,800
Cressy - - - -	27,000	12,500	8,000	2,516
Collingwood - - - -	31,597	14,500	16,000	2,500
Orion - - - -	32,810	14,764	8,000	2,340

We are, &c.

(signed) *A. B. Sturdee*, Master Shipwright.
G. Blaxland, Chief Engineer.

The Captain Superintendent.
Forwarded.

(signed) *W. King Hall*, Capt. Supt.

(D. S. 1217-67.)

"Colossus," "Euryalus," "Imperieuse," "Arrogant," "Termagant"—
Value of.

Sir,

Portsmouth Yard, 22 February 1867.

IN obedience to your Memo. of the 18th, on Controller's letter of the 16th instant, we beg to forward a statement of the value for sale and for breaking-up of the hull, and of the machinery of the under-mentioned ships :

Ship's Name.	Hull		Machinery	
	For Sale.	For Breaking up.	For Sale.	For Breaking up.
	£.	£.	£.	£.
Colossus - - - -	22,700	9,300	2,000	1,300
Euryalus - - - -	9,500	5,300	2,000	1,300
Imperieuse - - - -	8,300	5,300	1,800	1,150
Arrogant - - - -	5,200	3,980	1,800	1,150
Termagant - - - -	4,200	3,100	1,560	1,100

Observing that in the estimate for breaking-up, all the serviceable fittings are to be removed ; for sale, all those fittings are to remain in the ship.

We are, &c.

(signed) *H. Cradock*, Master Shipwright.
And. Murray, Chief Engineer.

The Admiral Superintendent.

Portsmouth Yard, 22 February 1867.

FORWARDED for the information of the Controller of the Navy, with reference to his Minute of the 16th instant, D.S. 833, observing that a vessel is much required here to lash long ships alongside of in the stream, and the "Arrogant" would be very suitable for this purpose.

By this means a swinging berth would be found for the "Minotaur," and others like her, which at present is impossible, as from her great length there is not room for her to swing round if she took in the moorings herself.

(signed) *George G. Wellesley*,
Admiral Superintendent.

(D. S. 1254-67.)

“Majestic,” “Brunswick,” and “Sanspareil”—Value of.

Sir,

Devonport Yard, 23 February 1867.

IN obedience to the Controller of the Navy's Order of the 16th instant—

We have the honour to transmit the value for sale and for breaking up of the hull, fixtures, and machinery of the “Majestic,” “Brunswick,” and “Sanspareil,” viz. :—

Value for Sale.

Ship's Name.	Hull.	Fixtures.	Total of Hull and Fixtures.	Engines, Boilers, and Machinery.	Total of Hull, Fixtures, Machinery, &c.
	£.	£.	£.	£.	£.
Majestic - - -	30,000	193	30,193	8,700	38,893
Brunswick - - -	28,818	400	29,218	11,300	40,518
Sanspareil - - -	36,500	309	36,809	9,360	46,169

Value for Breaking Up.

Ship's Name.	Hull.	Fixtures.	Total of Hull and Fixtures.	Engines, Boilers, and Machinery.	Total of Hull, Fixtures, Machinery, &c.
	£.	£.	£.	£.	£.
Majestic - - -	8,044	193	8,237	3,274	11,511
Brunswick - - -	8,099	400	8,499	4,200	12,699
Sanspareil - - -	8,596	309	8,905	3,274	12,179

We have, &c.

(signed) *A. Moore*, Master Shipwright.
T. W. Miller, Chief Engineer.
H. R. Herbert, Assistant.

The Admiral Superintendent.

Devonport Yard, 23 February 1867.

TRANSMITTED for the information of the Controller of the Navy, with reference to his letter of 16th instant, D. S. 832.

(signed) *J. W. Drummond*,
 Admiral Superintendent.

N. B.—Lists of fixtures on board the three ships herein mentioned were forwarded with this report.

Controller's Submission to the Board.

(No. 1085.)

Admiralty, 1 March 1867.

WITH reference to former correspondence on the subject of the sale of old ships, I beg leave to submit tenders for their purchase that have been received from Messrs. Castle and Beech, Messrs. Marshall, Mr. J. Marks; and, for two ships, from Messrs. Pollock and Brown. Mr. John White, of Cowes, declined to tender.

The parties on whom I called were informed that they would not be obliged to return the old copper and marked mixed metal, &c., to the nearest dockyard, but would be allowed to sell all such old metal to any firm with whom they habitually dealt, giving and receiving such certificates as might be necessary.

I have so fully explained the bearings of these conditions in my submission of the 18th instant, D. S. No. 865, that I will not now repeat them, but proceed to submit the offers that have been received for their Lordships' decision.

By

By the enclosed abstract, it will be seen that for ten ships, five at Sheerness and Chatham, and five at Portsmouth, Messrs. Castle and Beech offer 64,783 *l.*, and for three at Devonport, 20,050 *l.*

The offer of Messrs. Marshall for the 10 first-named ships is below that of Messrs. Castle and Beech; but for the three Plymouth ships they offer 20,770 *l.*, which is 720 *l.* in excess of the offer of Messrs. Castle and Beech.

I submit therefore that the offer of Messrs. Castle and Beech for the five Sheerness and Chatham ships should be accepted, and that the offer of Messrs. Marshall for the three ships at Plymouth, being the highest, should be accepted, and that the other offers be declined. The Portsmouth ships I will deal with hereafter. I beg leave to observe, that the prices offered are in advance of those originally proposed by Messrs. Castle and Beech.

If their Lordships are disposed to accept of these offers, the Storekeeper General should be informed of the conditions as to the old copper and mixed metal, and that the ships are to be sold as they are, without the removal of anything now on board.

I have prefixed to the abstract of the tenders received the value put upon these ships by the dockyard officers for breaking up purposes.

I have no idea whatever that anything like the value put upon these ships by the Sheerness and Devonport officers could be obtained. The estimate of the Portsmouth officers is more trustworthy, and I submit whether their Lordships should not inform Messrs. Castle and Beech that they will dispose of the Portsmouth ships for 32,980 *l.*, though they cannot accept 30,010 *l.* for them.

If these arrangements are carried out a sum of 88,523 *l.* will be realised, and be paid into the Exchequer for these 13 ships.

(signed) *Robert Spencer Robinson.*

ABSTRACT OF TENDERS received for certain SHIPS.

SHIPS' NAMES.	Ports where Lying.	Value for breaking up, as reported by Officers.			Tenders Received.			
		Hull, &c.	Engines, Boilers, &c.	TOTAL.	Castle & Beech.	Messrs. Marshall.	Mr. J. Marks.	Messrs. Pollock & Brown.
		£.	£.	£.	£. s. d.	£. s. d.	£.	£. s. d.
Chesapeake - -	Chatham - -	9,100	1,700	10,800	- - -	1,500 - -	1,390	-
Leander - - -	Sheerness - -	12,695	2,300	14,995	34,773 - -	6,900 - -	6,390	
Cressy - - -		12,500	2,516	15,016		5,500 - -	5,300	
Collingwood - -		14,500	2,500	17,000		8,200 - -	7,020	
Orion - - -		14,764	2,340	17,104		8,400 - -	7,800	
				74,915		30,500 - -	27,900	
Euryalus - - -	Portsmouth - -	5,300	1,300	6,600	30,010 - -	5,650 - -	5,320	4,175 - -
Imperieuse - -		5,300	1,150	6,450		6,205 - -	5,750	5,150 - -
Arrogant - - -		3,980	1,150	5,130		5,520 - -	5,100	
Termagant - -		3,100	1,100	4,200		4,400 - -	4,310	
Colossus - - -		9,300	1,300	10,600		6,310 - -	6,005	
				32,980		28,085 - -	26,485	
Majestic - - -	Devonport - -	8,237	3,274	11,511	20,050 - -	7,160 - -	6,300	
Brunswick - -		8,499	4,200	12,699		6,990 - -	6,200	
Sanspareil - -		8,905	3,274	12,179		6,620 - -	6,460	
				36,389		20,770 - -	18,960	
					Propose to pay 10 per cent. deposit on the whole; pay for and remove three ships within one month; the remainder in 12 months.	Propose to pay a deposit of 500 <i>l.</i> per ship, and the balance before delivery. One ship to be removed at once, then one every three months	The other ships they have not had time to examine.	

(D. S. 1537—67.)

ADMIRALTY ORRDE.

Controller of the Navy.

Admiralty, 8 March 1867.

WITH reference to your report, No. 1085, of the 1st instant, I am to acquaint you that their lordships have accepted the offer of Messrs. Castle and Beech to purchase the following ships for the sum of 34,773 *l.*, viz. :—

Chesapeake at Chatham	-	-	-	-	} Including machinery, and boilers of Chesapeake, also boilers and con- nections of Cressy, in Sheerness yard.
Cressy at Sheerness	-	-	-	-	
Leander „	-	-	-	-	
Collingwood „	-	-	-	-	
Orion „	-	-	-	-	

Also the offer of Messrs. Marshall to purchase the *Majestic*, *Brunswick*, and *Sanspareil* at Devonport, for the sum of 20,770 *l.*

The sale of these ships in both cases is made on the understanding that the parties will not be obliged to return the old copper, and marked mixed metal, &c., to the nearest dockyard, but will be allowed to sell all such old metal to any firm with whom they habitually deal, giving and receiving such certificates as may be necessary.

The Storekeeper General has been informed on the subject, and the tenders have been forwarded to him. He has at the same time been acquainted, that it is to be understood that the ships are to be delivered as they are without the removal of anything now on board.

My lords have further informed Messrs. Castle and Beech with regard to their tender to purchase the five ships at Portsmouth, that they would be willing to take the sum of 32,980 *l.* on the same conditions.

The tenders of Mr. Marks and Messrs. Pollock and Brown which are enclosed, have been declined.

By command of their Lordships,
(signed) *Henry G. Lennox.*

(D. S. 1547—67.)

Messrs. *Castle* and *Beech* to the Controller of the Navy.

Baltic Wharf, Millbank, S. W., London,
9 March 1867.

Sir,

WE beg to inform you that we are in receipt of a letter from the secretary of the Admiralty accepting our tender for the purchase of five ships at Sheerness and Chatham; but with reference to the five Portsmouth ships, their lordships require 32,980 *l.* (which is an advance upon our offer of 2,970 *l.*); we very respectfully beg to inquire if their lordships are willing to reduce that sum to 32,000 *l.* We beg leave to mention, that the price of copper has been reduced since our offer of the 19th ultimo, and that with the Portsmouth ships, we shall be at a considerable expense and risk in transporting those vessels to London. Awaiting their lordships' further consideration and reply,

To Admiral R. S. Robinson,
Admiralty, Whitehall.

We are, &c.
(signed) *Henry Castle and Sons.*
Wm. P. Beech.

Controller's Submission to the Board.

(No. 1235.)

11 March 1867.

Submitted for their lordships' consideration and directions; observing that this offer, viz., 32,000 *l.* is an advance of 2,000 *l.* on their former offer, and nearly 4,000 *l.* more than the offer of Messrs. Marshall, and 5,500 *l.* beyond what was offered by Mr. J. Marks. I am of opinion that it may be accepted if their lordships think fit.

(signed) *R. S. R.*

(D. S. 1658—67.)

ADMIRALTY ORDER.

Controller of the Navy.

Admiralty, 14 March 1867.

With reference to your report, No. 1,235, of the 11th instant, I am to acquaint you that their lordships have accepted the tender of Messrs. Castle and Beech to purchase the following ships for the sum of 32,000 *l.*

Euryalus, Imperieuse, Arrogant, Termagant, Colossus.

The sale of these ships is to take place under similar conditions to those sold on the 8th instant.

By command of their Lordships,

(signed) *W. G. Romaine.*

NAVY (SHIPS SOLD).

RETURN of the Number of Ships (whether Steamers or Sailing Vessels) Sold by the ADMIRALTY from July 1859 to 9 May 1867, stating severally the Ages of the Ships, the Ages of the Engines, the Number and Weight of spare Screw Propellers, the Tonnage, Horse Power, and the Net Amount of Money obtained for each Ship, &c.; and, Copy of OFFICIAL REPORTS relating to the Sale and Valuation of the said Ships.

(*Mr. Seely.*)

*Ordered, by The House of Commons, to be Printed,
16 August 1867.*

560.

Under 3 cz.

72

NAVY (VESSELS OF WAR).

RETURN to an Order of the Honourable The House of Commons,
dated 21 March 1867;—for,

RETURN “of the Number and Class of VESSELS of WAR, including
SURVEYING VESSELS, employed on FOREIGN and COLONIAL SERVICE,
showing the Station, Tonnage, and Complement of Officers and Men, of
each Ship.”

Admiralty, }
30 March 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

(*Mr. Robert Duff.*)

Ordered, by The House of Commons, to be Printed,
2 April 1867.

1st March 1867.

RETURN of the Number and Class of VESSELS of WAR, including SURVEYING VESSELS, employed on FOREIGN and COLONIAL SERVICE, showing the Station, Tonnage, and Complement of Officers and Men, of each Ship.

MEDITERRANEAN.

Rate.	Ship's Name.	Tons.	Total Complement.	REMARKS.
First - - -	Victoria - - -	4,127	1,010 6	Supernumeraries.
Fourth - - -	Arethusa - - -	3,141	515	
" - - -	Endymion - - -	2,486	455	
Armour-plated ship	Royal Oak - - -	4,056	605	
" "	Prince Consort - - -	4,045	605	
" "	Ocean - - -	4,047	605	
" "	Resistance - - -	3,710	457	
" "	Enterprise - - -	993	130	
Sloop - - -	Racer - - -	579	130	
" - - -	Cruizer - - -	752	175	
Gun Vessel - - -	Assurance - - -	681	90	
Steam Vessel - - -	Caradoc - - -	676	67	
" - - -	Psyche - - -	835	65	
Gun Boat - - -	Cockatrice - - -	269	46	
" - - -	Tyrian - - -	272	40	
" - - -	Wizard - - -	270	40	
" - - -	Skylark - - -	236	30	
			2	Supernumeraries.
Receiving Ship -	Hibernia - - -	2,530	127 7	Supernumeraries.
Schooner - - -	Azov - - -	94	—	
Steam Vessel - - -	Hydra - - -	818	106	Surveying Vessel.
TOTAL - - -	- - - 20 - - -	34,617	5,313	

NORTH AMERICA AND WEST INDIES.

Second - - -	Duncan - - -	3,727	900 1	Supernumerary.
Fourth - - -	Constance - - -	3,213	515	
" - - -	Aurora - - -	2,558	515	
" - - -	Doris - - -	2,483	490	
Sixth - - -	Wolverene - - -	1,703	275	
" - - -	Cadmus - - -	1,466	275	
" - - -	Jason - - -	1,711	275	
" - - -	Niger - - -	1,072	180	
Armour-plated Ship	Favourite - - -	2,094	250	
Sloop - - -	Sphinx - - -	1,061	175	
" - - -	Barracouta - - -	1,053	175	
" - - -	Fawn - - -	751	175	
" - - -	Cordelia - - -	579	130	
" - - -	Gannet - - -	579	110	{ Man-of-War doing duty as Surveying Vessel.
Gun Vessel - - -	Cygnet - - -	428	65	
" - - -	Steady - - -	431	65	
" - - -	Nimble - - -	428	65	
Receiving Ship -	Aboukir (Jamaica) - - -	3,091	136 4	Supernumeraries.
Flouting Battery -	Terror (Bermuda) - - -	1,971	72 218	Supernumeraries.
Gun Boat - - -	Delight - - -	236	40	
" - - -	Britomart - - -	270	40	
" - - -	Heron - - -	270	40	
" - - -	Cherub - - -	268	40	
" - - -	Minstrel - - -	268	40	
" - - -	Nettle - - -	212	40	
" - - -	Albacore - - -	235	40	
Receiving Ship -	Pyramus - - -	920	6	
" " - - -	Tenedos - - -	1,083	6	
Sloop - - -	Royalist - - -	669	130	Ordered home.
TOTAL - - -	- - - 29 - - -	34,827	5,488	

SOUTH EAST COAST OF AMERICA.

Rate.	Ship's Name.	Tons.	Total Complement.	REMARKS.
Fourth - -	Narcissus - - -	2,665	515	Supernumerary.
Sloop - - -	Spiteful - - -	1,054	175	
Steam Vessel -	Sharpshooter - - -	503	84	
„ - - -	Triton - - -	654	85	
Gun Boat - -	Gleaner - - -	217	40	
„ - - -	Doterel - - -	270	40	
„ - - -	Spider - - -	236	40	
„ - - -	Linnet - - -	268	40	
Receiving Ship -	Egmont (at Rio de Janeiro)	1,780	94	
TOTAL - - -	- 9 - - -	7,647	1,115	

EAST INDIES.

Fourth - - -	Octavia - - -	3,161	515	
Sixth - - -	Highflyer - - -	1,161	255	
„ - - -	Wasp - - -	974	175	
Sloop - - -	Lyra - - -	488	90	
Gun Vessel -	Vigilant - - -	680	90	
„ - - -	Star - - -	695	90	
„ - - -	Penguin - - -	481	60	
TOTAL - - -	- 7 - - -	7,590	1,275	

CAPE OF GOOD HOPE.

Sixth - - -	Valorous - - -	1,257	235	Supernumeraries.
Sloop - - -	Peterel - - -	669	110	
Receiving Ship -	Seringapatam - - -	1,152	41	
			60	
TOTAL - - -	- 3 - - -	3,078	446	

WEST COAST OF AFRICA STATION.

Rate.	Ship's Name.	Tons.	Total Complement.	REMARKS.
Fourth - -	Bristol - - - -	3,027	515	Supernumeraries.
Sloop - -	Greyhound - - - -	880	175	
" - -	Vestal - - - -	1,081	130	
Gun Vessel -	Ranger - - - -	427	65	
" - -	Espoir - - - -	428	65	
" - -	Landrail - - - -	427	65	
" - -	Torch - - - -	428	65	
" - -	Mullet - - - -	430	65	
" - -	Dart - - - -	428	65	
Steam Vessel -	Oberon - - - -	649	75	
" - -	Antelope - - - -	650	66	
" - -	Pioneer (Tender to Bristol)	142	39	
" - -	Investigator - - - -	149	40	
Store Ship - -	Flora (at Ascension) -	1,634	124	
" - -	Dromedary - - - -	654	63	
Receiving Ship -	Isis (at Sierra Leone) -	1,321	5	
Store Ship - -	Vindictive (at Jellah Coffee)	1,758	58	
Gun Boat - -	Handy (Tender to Investigator).	235	31	
Gun Vessel - -	Snipe - - - -	431	65	
TOTAL - -	- - 19 - - -	15,179	1,894	

PACIFIC.

Armour-plated Ship	Zealous - - - -	3,716	510	Supernumeraries.
			46	
Fourth - -	Topaze - - - -	2,659	515	
Sixth - -	Clio - - - -	1,472	295	
" - -	Scout - - - -	1,462	275	
" - -	Malacca - - - -	1,034	215	
Sloop - -	Alert - - - -	751	175	
" - -	Mutine - - - -	882	175	
" - -	Reindeer - - - -	953	175	
" - -	Columbine - - - -	672	130	
Gun Vessel -	Sparrowhawk - - - -	676	90	
Gun Boat - -	Forward - - - -	236	40	
Store Ship - -	Nereus (at Valparaiso) -	1,094	35	
Fourth - -	Sutlej - - - -	3,066	515	
Sloop - -	Shearwater - - - -	669	130	
TOTAL - -	- - 14 - - -	19,342	3,321	

CHINA STATION.

Rate.	Ship's Name.	Tons.	Total Complement.	REMARKS.
Second - -	Princess Royal - -	3,129	800	
Sixth - -	Pelorus - -	1,464	275	
" - -	Pearl - -	1,469	275	
" - -	Satellite - -	1,462	275	
Troop Ship -	Adventure - -	1,794	161	
Sloop - -	Basilisk - -	1,031	175	
" - -	Rattler - -	952	175	
" - -	Argus - -	981	175	
" - -	Perseus - -	955	175	
" - -	Rinaldo - -	951	175	
" - -	Icarus - -	580	130	
Gun Vessel -	Cormorant - -	695	90	{ Man-of-War doing Surveying duty.
" - -	Serpent - -	695	90	
" - -	Slaney - -	301	50	
" - -	Algerine - -	299	50	
Steam Vessel -	Salamis - -	835	65	
			10	Supernumeraries.
" " - -	Manilla - -	295	50	{ To be sold on Station; not to be relieved.
Gun Boat - -	Hardy - -	233	40	
" - -	Havock - -	233	40	
" - -	Grasshopper - -	233	40	
" - -	Insolent - -	235	40	
" - -	Cockchafer - -	236	40	
" - -	Weasel - -	235	40	
" - -	Haughty - -	233	40	
" - -	Bustard - -	234	40	
" - -	Banterer - -	237	40	
" - -	Firm - -	238	40	
" - -	Snap - -	234	40	
" - -	Forester - -	233	40	
" - -	Drake - -	238	40	
" - -	Janus - -	238	40	{ To be sent home, if practicable; if not, to be sold; not to be relieved.
Store Ship -	Hesper - -	808	56	
Receiving Ship -	Princess Charlotte (at Hong Kong).	2,443	100	Supernumeraries.
			122	
Gun Boat - -	Opossum - -	235	—	
Hospital Ship -	Acorn - -	485	26	
			22	Supernumeraries.
" " - -	Melville - -	1,768	—	
Sixth - -	Scylla - -	1,467	275	Ordered home.
Gun Vessel -	Osprey - -	682	90	Ordered home.
" - -	Sylvia - -	695	91	Surveying vessel.
" - -	Rifleman - -	486	90	Surveying vessel.
TOTAL - -	- - 40 - -	30,246	4,628	

AUSTRALIA.

Sixth - -	Challenger - -	1,462	295	Supernumeraries.
			22	
" - -	Charybdis - -	1,506	275	
" - -	Brisk - -	1,087	205	
Sloop - -	Falcon - -	751	175	
" - -	Salamander - -	818	140	
Sixth - -	Esk - -	1,169	255	Ordered home.
TOTAL - -	- - 6 - -	6,793	1,367	

DETACHED—IN STRAITS OF MAGELLAN.

Steam Vessel -	Nassau - -	695	90	Surveying vessel.
----------------	------------	-----	----	-------------------

NAVY (VESSELS OF WAR).

RETURN of the Number and Class of VESSELS of WAR, including SURVEYING VESSELS, employed on FOREIGN and COLONIAL SERVICE, showing the Station, Tonnage, and Complement of Officers and Men, of each Ship.

(*Mr. Robert Duff.*)

*Ordered, by The House of Commons, to be Printed,
2 April 1867.*

749

VESSELS NOT ARMOUR-PLATED.

RETURN to an Order of the Honourable The House of Commons,
dated 14 August 1867;—for,

RETURN “ of VESSELS NOT ARMOUR-PLATED, Building, or Ordered to be Built, during the Year 1867 ; probable Progress during the Year ; when to be Launched ; when Completed ; and Amount expended up to, the 31st day of March 1867 ; and Estimated Amount up to the 31st day of March 1868 (in the same form and in continuation of Parliamentary Paper, No. 525, of Session 1866.) ”

Admiralty, }
15 August 1867. }

JOHN HENRY BRIGGS,
Chief Clerk.

(Mr. Laird.)

Ordered, by The House of Commons, to be Printed,
16 August 1867.

VESSELS NOT ARMOUR-PLATED.

THE cost given in this Return is taken from the papers laid before Parliament yearly, compiled in the Accountant General's Office, corrected up to the latest date of the accounts in office.

An explanation of the nature of what he has called Incidental and Establishment charges, also taken from the same documents, is subjoined :

A. INDIRECT CHARGES Incidental to the Building, Repairing, &c., of Her Majesty's SHIPS and VESSELS.

- Cables, pendants, chains, swivels, bridles, and buoys.
- Transporting hawsers, warps, and other launching and docking gear.
- Opening and shutting dock gates and penstocks, floating and sinking caissons and pumping docks.
- Landing, surveying, receiving, depositing and issuing stores.
- Shipping off timber and stores to other yards at home (to include the cost of packing cases).
- Shipping off timber and stores to other yards abroad (to include the cost of packing cases).
- Collecting old timber, chips, and stores for sales ; and cleaning and clearing the yard and docks.
- Preservation of timber and stores.
- Cranes, capstans, steam hoists, &c.—Repairs, replacements, and maintenance of.
- Crabs, winches, carts, waggons, timber carriages, sledges, barrows, ladders, &c.
- Fire engines, buckets, and hoses.
- Wages of all single-stationed men, boats' crews, &c.
- Dockyard chapel (labour and petty stores).
- Chemical lecture room and laboratory (labour and petty stores).
- School for apprentices (including wages while at school).
- Petty stores and incidental charges for police force and military guard.
- Allowances for apprentices' instructors, inclusive of allowances to draughtsmen for instructing apprentices in drawing.
- Half-pay to men absent from the yard in consequence of hurts.
- Allowances for holidays.
- Coals, candles, and other stores for officers' offices.
- Sweeping chimneys.
- Waterworks for supplying the yard and for extinguishing fire.
- Rope for guys and stages.
- Materials and labour for mould lofts.
- Timber, blocks, plank, bilgeways, cleats, &c., for launching and docking ships.
- Shores, spauls, stage deals, wedges, harpins, and ribbands.
- Stores issued to workmen, on loan from loan tool store.
- Blocks under new ships, brows, temporary ladders for, and housing over ships, &c.
- Screws for securing plank, &c.

Repairs of docks, slips, and basins, including housings over docks and slips; of sheds, workshops, caissons, timber racks, and all other buildings, *when done by yard workmen.*

Repairs, replacements, and maintenance of machinery in workshops and yards, *when done by yard workmen.*

Experimental services.

Other miscellaneous charges.

B. In addition to these charges called Incidental, the Accountant General has included [*see Accountant General's Report prefixed to the Parliamentary Return, No. 44 of 1866, Navy (Dockyard Stock Valuation) 1864-65, page iv.*]:—

Cost of supervising power of the Establishments at home and abroad, which includes the salaries of all the professional officers, storekeepers, accountants, cashiers, surgeons, chaplains, schoolmasters, clerks, and writers, with their emoluments, house allowances, &c., &c.

Rents, rates, taxes, and contingent charges of the above Establishments.

Cost of surveys and valuations.

Wages of yard craftsmen, and charges for the conveyance of stores.

Repairs and replacement of yard plant, for the purpose of keeping it in working order.

Enhanced or depreciated value of the stock in hand.

and has divided this cost in proportion to the labour and materials employed on the above recited service.

Moreover, in addition to the foregoing incidental and establishment charges, the charge of 3 per cent. upon the aggregate amount of the manufacturing operations in the several dockyards at home, for the year, has been added to the cost of building, fitting, and repairing ships, as the *final productions* of the yard, in the nature of a rent to cover interest on capital and depreciation of plant in the establishments where the works are carried on. This rate of per centage is in accordance with the recommendation of the Committee on Dockyard Manufactures, based upon the evidence of Mr. Scott Russell, and of Mr. Andrew Murray, Chief Engineer of Portsmouth Factory, given before the Select Committee on Navy, Army, and Ordnance Estimates (Parliamentary Paper, No. 555, Session 1848) and as approved of by their Lordships.

The adoption in full of the foregoing indirect charges resulted in a charge of about 35 per cent. being added to the gross direct charges for labour and materials expended upon each ship, in the year 1864-65.

In the year 1865-66, these indirect charges amounted to about 51 per cent. on the gross direct charges, an explanation of which increase will be found at page 2 of Accountant General's Report, prefixed to the Annual Return of Expenses on Ships, and Parliamentary Return, No. 454, of Session 1867.

In 1866-67, the Accounts for which year are not complete, the indirect charges have been calculated at the same rate as in 1865-66, viz., about 51 per cent.

Rob. Spencer Robinson,
Controller of the Navy.

Controller's Office,
30 August 1867.

RETURN OF VESSELS NOT ARMOUR-PLATED, - - - - -

NAMES.	Guns.	Tons.	Load	Horse-power.	Draught of Water.		Length		Breadth,	
			Displace- ment.		Forward.	Aft.	Between Perpendiculars.	Of Keel for Tonnage.	Extreme.	For Tonnage.
			Tons.		Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.
Inconstant -	16	4,011	5,552	1,000	22 0	24 6	333 0	298 13 ⁸ / ₈	50 3 ¹ / ₂	50 3
Volage -	8	2,321	3,320	600	18 0	22 0	270 0	247 5 ¹ / ₈	42 0	42 0
Juno -	6	1,459	2,155	400	16 6	17 6	200 0	171 5 ⁵ / ₈	40 4	40 0
Thalia -	6	1,459	2,155	400	16 6	17 6	200 0	171 5 ⁵ / ₈	40 4	40 0
Blanche -	6	1,268	1,699	350	13 6	16 6	212 0	185 8 ¹ / ₈	36 0	35 10
Danaë -	6	1,287	1,699	350	13 6	16 6	212 2	185 9	36 1	35 11
Dido -	6	1,268	1,699	350	13 6	16 6	212 0	185 8	36 0	35 10
Sappho -	6	1,268	1,699	350	13 6	16 6	212 0	185 8	36 0	35 10
Sirius -	6	1,268	1,699	350	13 6	16 6	212 0	185 8	36 0	35 10
Spartan -	6	1,268	1,699	350	13 6	16 6	212 0	185 8	36 0	35 10
Tenedos -	6	1,268	1,699	350	13 6	16 6	212 0	185 8	36 0	35 10
Daphne -	4	1,081	1,484	300	12 9	17 3	187 0	158 3 ¹ / ₂	36 0	35 10
Dryad -	4	1,086	1,495	300	12 11	17 5	187 3	158 6 ¹ / ₈	36 0 ³ / ₄	35 10 ¹ / ₂
Niobe -	4	1,083	1,550	300	13 3	17 8	187 0	158 7 ³ / ₄	36 0 ¹ / ₈	35 10 ¹ / ₈
Nymphe -	4	1,084	1,574	300	13 6	17 9	187 0	158 8 ⁷ / ₈	36 0	35 10
Vestal -	4	1,081	1,597	300	14 0	17 7	187 0	158 3 ¹ / ₂	36 0	35 10
Myrmidon -	4	697	808	200	10 6	11 6	185 0	165 7 ³ / ₄	28 4 ¹ / ₂	28 1 ¹ / ₂
Newport -	5	425	490	80	9 3	11 9	145 0 ¹ / ₄	127 10 ⁷ / ₈	25 4	25 0

B. These Incidental and Establishment Expenses are charged as calculated since 31 March 1864, see preceding Statement; paragraph, marked B.

- - - BUILDING, OR ORDERED TO BE BUILT, DURING THE YEAR 1867.

Probable Progress during the Year 1867-68.	Probable Time of Launching.	Probable Time of Completion.	Hull, Wood, or Iron.	Cost of Hull up to 31 March 1867.		Estimated Expenditure on Hull, from 1 April 1867 to 31 Mar. 1868.	REMARKS
				Labour and Materials.	Incidental and Establishment Charges as enumerated in Statement prefixed.		
$\frac{3\frac{5}{8}}{8}$	Nov. 1868	Feb. 1869	Iron, cased with Wood.	£. 10,647	£. B. 5,526	£. 72,500	Less progress was made "Inconstant" than anticipated last year.
Uncertain -	Uncertain -	Uncertain -	- ditto -	- nil -	- nil -	Uncertain	Contract not yet made.
$\frac{4\frac{3}{4}}{8}$	28 Dec. 1867	Feb. 1868	Wood -	15,516	B. 8,050	27,644	Less progress was made "Junno" than was anticipated last year.
$\frac{1\frac{1}{4}}{8}$	Aug. 1869	Nov. 1869	ditto -	7,844	B. 4,199	7,296	
$\frac{3\frac{1}{4}}{8}$	Launched -	31 Dec. 1867	ditto -	25,168	B. 13,148	17,575	
$\frac{2\frac{3}{8}}{8}$	Launched -	7 Nov. "	ditto -	29,753	B. 16,066	13,097	Rather more progress made on "Danaë" than anticipated last year.
$\frac{1\frac{1}{2}}{8}$	Uncertain -	Uncertain -	ditto -	- nil -	- nil -	7,984	
$\frac{7\frac{1}{8}}{8}$	14 Nov. 1867	31 Mar. 1868	ditto -	7,290	B. 4,383	38,710	Less progress was made "Sappho" than was anticipated last year.
$\frac{6}{8}$	April 1868	June "	ditto -	3,231	B. 1,672	31,938	
$\frac{2\frac{3}{4}}{8}$	March 1869	June 1869	ditto -	- nil -	- nil -	14,588	
$\frac{1\frac{1}{2}}{8}$	Uncertain -	Uncertain -	ditto -	- nil -	- nil -	7,984	
$\frac{\frac{1}{2}}{8}$	Launched -	Completed -	ditto -	34,686	B. 19,179	2,230	
Nearly complete on 31 March 1867.	Launched -	Completed -	ditto -	35,307	B. 18,568	1,636	
-	Launched -	Completed -	ditto -	45,545	B. 23,244	- nil.	
Nearly complete on 31 March 1867.	Launched -	Completed -	ditto -	39,970	B. 21,201	Estimated amount expended before 31 March 1867.	
-	Launched -	Completed -	ditto -	40,482	B. 20,906	- nil.	
$\frac{1\frac{1}{2}}{8}$	Launched -	30 Sept. 1867	ditto -	15,854	A.B. 3,413	11,466	This vessel was ordered completed, after being expended for some years.
$\frac{4\frac{1}{4}}{8}$	Launched -	Oct. "	ditto -	5,897	A.B. 1,420	9,103	This vessel was ordered completed, after being expended for some years.

A.B. These Incidental and Establishment Expenses have been charged partly as calculated previously to 31 March 1864, and partly as calculated at that date.

RETURN OF VESSELS NOT ARMOUR-PLATED, - - - - -

NAMES.	Guns.	Tons.	Load Displace- ment.	Horse-power.	Draught of Water.		Length		Breadth,	
					Forward.	Aft.	Between Perpendiculars.	Of Keel for Tonnage.	Extreme.	For Tonnage.
			Tons.		Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.
Bittern - -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 7 $\frac{3}{8}$	29 0	28 8
Bullfinch -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 7 $\frac{3}{8}$	29 0	28 8
Curlew - -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 7 $\frac{3}{8}$	29 0	28 8
Lapwing -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 7 $\frac{3}{8}$	29 0	28 8
Magpie - -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 7 $\frac{3}{8}$	29 0	28 8
Philomel -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 7 $\frac{3}{8}$	29 0	28 8
Plover - -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 8	29 0	28 8
Ringdove -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 7 $\frac{3}{8}$	29 0	28 8
Seagull - -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 7 $\frac{3}{8}$	29 0	28 8
Swallow - -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 7 $\frac{3}{8}$	29 0	28 8
Vulture - -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 7 $\frac{3}{8}$	29 0	28 8
Woodlark -	3	663	754	160 Double screw.	9 0	9 6	170 0	151 7 $\frac{3}{8}$	29 0	28 8
Bruiser - -	2	268	304	60	7 8	7 8	120 0	105 7 $\frac{7}{8}$	22 0	21 10
Cromer - -	2	268	304	60	7 8	7 8	120 0	105 7 $\frac{7}{8}$	22 0	21 10
Netley - -	2	268	317	60	7 9 $\frac{1}{2}$	8 2	120 0	105 7 $\frac{7}{8}$	22 0	21 10
Orwell - -	2	268	315	60	7 10	8 0	120 0	105 7 $\frac{7}{8}$	22 0	21 10
Staunch - -	1	200	162	25 Double screw.	6 0	6 0	75 0	- -	25 0	- -
Avon - -	2	464	579	120 Double screw.	7 6	7 6	155 0	139 6 $\frac{5}{8}$	25 0	25 0
Beacon - -	2	465	579	120 Double screw.	7 6	7 6	155 0	139 6 $\frac{7}{8}$	25 0	25 0 $\frac{1}{4}$
Boxer - -	2	464	579	120 Double screw.	7 6	7 6	155 0	139 6 $\frac{5}{8}$	25 0	25 0

BUILDING, OR ORDERED TO BE BUILT DURING THE YEAR 1867.

BUILDING, OR ORDERED TO BE BUILT, DURING THE YEAR 1867—continued.

Probable Progress during the Year 1867-68.	Probable Time of Launching.	Probable Time of Completion.	Hull, Wood, or Iron.	Cost of Hull up to 31 March 1867.		Estimated Expenditure on Hull from 1 April 1867 to 31 Mar. 1868.	REMARKS.
				Labour and Materials.	Incidental and Establishment Charges as enumerated in Statement prefixed.		
				£.	£.	£.	
Frame to be converted.	Uncertain -	Uncertain -	Wood - -	- nil -	- nil -	- nil.	
$\frac{8}{8}$	Dec. 1867	31 Mar. 1868	ditto - -	- nil -	- nil -	23,200	
$\frac{3}{8}$	Nov. 1868	Jan. 1869	ditto - -	- nil -	- nil -	8,700	
$\frac{7}{8}$	8 Nov. 1867	31 Mar. 1868	ditto - -	2,400	B. 1,242	21,189	
$\frac{7}{8}$	Feb. 1868	April „	ditto - -	- nil -	- nil -	20,300	
$\frac{5\frac{7}{8}}{8}$	29 Oct. 1867	Dec. 1867	ditto - -	4,368	B. 2,264	18,386	
$\frac{3}{8}$	Launched -	Completed -	ditto - -	21,068	B. 11,101	5,431	
$\frac{6\frac{1}{2}}{8}$	4 Sept. 1867	Jan. 1868	ditto - -	4,287	B. 2,221	21,121	
$\frac{6\frac{1}{2}}{8}$	7 Jan. 1868	April „	ditto - -	- nil -	- nil -	18,850	
$\frac{6}{8}$	June „	July „	ditto - -	- nil -	- nil -	17,400	
$\frac{\frac{1}{2}}{8}$	Uncertain -	Uncertain -	ditto - -	- nil -	- nil -	1,450	
Frame to be converted.	Uncertain -	Uncertain -	ditto - -	- nil -	- nil -	- nil.	
$\frac{1}{8}$	Launched -	Completed -	ditto - -	8,282	A.B. 4,361	1,667	
$\frac{5}{8}$	Launched -	Nov. 1867	ditto - -	4,272	A.B. 1,686	5,677	
-	Launched -	Completed -	ditto - -	10,412	A.B. 4,665	- nil.	
-	Launched -	Completed -	ditto - -	10,311	A.B. 5,054	- nil.	
$\frac{8}{8}$	Nov. 1867	Jan. 1868	Iron - -	- nil -	- nil -	6,450	Building by contract. estimated expense is contract price, incl. engines.
$\frac{7\frac{3}{4}}{8}$	Uncertain -	Feb. „	Iron frames, wood planking.	358	B. 185	14,642	
$\frac{7}{8}$	Launched -	31 Dec. 1867	ditto - -	1,361	B. 744	13,639	
$\frac{7\frac{1}{2}}{8}$	25 Jan. 1868	Feb. 1868	ditto - -	403	B. 208	14,597	

RETURN OF VESSELS NOT ARMOUR-PLATED,

RETURN OF VESSELS NOT ARMOUR-PLATED, - - - - -

NAMES.	Guns.	Tons.	Load Displace- ment.	Horse-power.	Draught of Water.		Length				Breadth,	
					Forward.	Aft.	Between Perpendiculars.		Of Keel for Tonnage.		Extreme.	For Tonnage.
			Tons.		Ft. in.	Ft. in.	Ft. in.	in.	Ft. in.	in.	Ft. in.	Ft. in.
Cracker - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Dwarf - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Elk - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Flirt - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Fly - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Gnat - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Thistle - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Growler - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Hart - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Hornet - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Lynx - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Midge - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Pert - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Rocket - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Teazer - -	2	464	579	120 Double screw.	7 6	7 6	155	0	139	6 $\frac{5}{8}$	25	0
Pelter - -	-	257	285	40	6 6	6 6	115	0	99	10 $\frac{7}{8}$	22	0
Carron - -	-	267	418	144	9 6	9 6	130	0	114	10	21	11

BUILDING, OR ORDERED TO BE BUILT, DURING THE YEAR 1867—continued.

Probable Progress during the Year 1867-68.	Probable Time of Launching.	Probable Time of Completion.	Hull, Wood, or Iron.	Cost of Hull up to 31 March 1867.		Estimated Expenditure on Hull from 1 April 1867 to 31 Mar. 1868.	REMARKS.
				Labour and Materials.	Incidental and Establishment Charges as enumerated in Statement prefixed.		
$\frac{8}{8}$	Nov. 1867	31 Mar. 1868	Iron frames, wood planking.	£. nil -	£. nil -	£. 15,000	
$\frac{7\frac{1}{2}}{8}$	Nov. „	Feb. „	- ditto -	931	B. 517	14,069	
$\frac{8}{8}$	Jan. 1868	Mar. „	- ditto -	nil -	nil -	15,000	
$\frac{8}{8}$	20 Dec. 1867	31 Mar. „	- ditto -	nil -	nil -	15,000	
$\frac{8}{8}$	20 Dec. „	31 Mar. „	- ditto -	nil -	nil -	15,000	
$\frac{7\frac{1}{2}}{8}$	Nov. „	Jan. „	- ditto -	769	B. 398	14,231	
$\frac{7\frac{1}{2}}{8}$	25 Jan. 1868	Feb. „	- ditto -	402	B. 208	14,598	
$\frac{8}{8}$	30 Oct. 1867	30 Nov. 1867	- ditto -	nil -	nil -	9,279	
$\frac{8}{8}$	Jan. 1868	April 1868	- ditto -	nil -	nil -	11,830	
$\frac{8}{8}$	Jan. „	April „	- ditto -	nil -	nil -	12,250	
$\frac{8}{8}$	Jan. „	April „	- ditto -	nil -	nil -	10,207	
$\frac{8}{8}$	Dec. 1867	1 Mar. „	- ditto -	nil -	nil -	11,946	Building by contract. The estimated expense is the contract price.
$\frac{8}{8}$	Mar. 1868	April „	- ditto -	nil -	nil -	12,758	
$\frac{8}{8}$	16 Dec. 1867	16 Feb. „	- ditto -	nil -	nil -	13,802	
$\frac{8}{8}$	Building in Dock.	Mar. „	- ditto -	nil -	nil -	13,454	
$\frac{3\frac{1}{2}}{8}$	Launched -	Completed -	Iron -	4,000	nil -	1,177	Building by contract. The estimated expense is the contract price.
$\frac{3\frac{1}{2}}{8}$	Launched -	Sept. 1867	Wood -	5,099	B. 2,664	1,501	Less progress was made on "Carron" than was anticipated last year.
						£. 677,552	

VESSELS NOT ARMOUR-PLATED.

RETURN of VESSELS NOT ARMOUR-PLATED,
Building, or Ordered to be Built, during the
Year 1867; probable Progress during the Year;
when to be Launched; when Completed; and
Amount expended up to 31 March 1867; and
Estimated Amount up to 31 March 1868 (in
continuation of Parliamentary Paper, No. 525,
of Session 1866).

(*Mr. Laird.*)

*Ordered, by The House of Commons, to be Printed,
16 August 1867.*

